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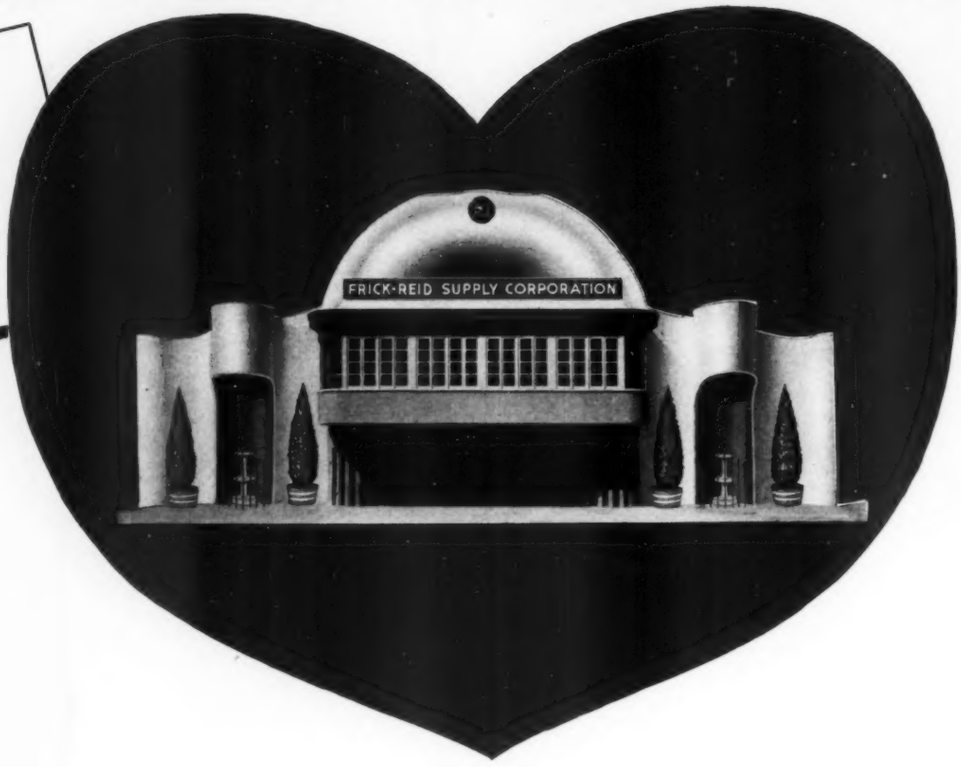

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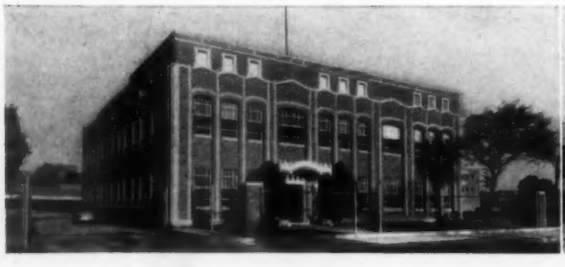

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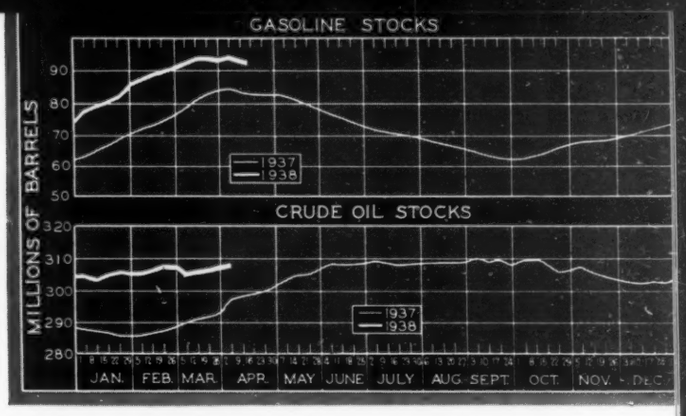
Importance of Small States Rises



THE increasing output of the smaller oil-producing states is making them as a group a much more important factor in oil markets than they were last year. A year ago Central Illinois crude output was about 3,000 barrels daily, in contrast with the present output of nearly 30,000 barrels. Michigan's output has been increased 10,000 barrels daily with smaller increases in Kentucky and Ohio.

CRUDE PRODUCTION *3,383,543 barrels daily average—down 9,093 barrels.*

CRUDE STOCKS *308,237,000 barrels as of April 2—up 680,000 barrels.*

GASOLINE STOCKS *92,001,000 barrels as of April 16—down 278,000 barrels.*

REFINERY RUNS *3,150,000 barrels daily week ending April 16—up 40,000.*

With the actual crude demand no more than it was a year ago, this gain of 40,000 barrels daily in Middle West output has reduced the takings in Oklahoma and Kansas which for years have supplied the bulk of the petroleum requirements of the Middle West. This development partially explains the fact that crude-oil output in Oklahoma and Kansas last week was 200,000 barrels daily or 23 per cent less than in the corresponding period of last year. These states also have lost markets to other areas either in the form of crude oil or refined products. Another explanation of the large decline in production is the fact that last year large quantities of crude were going to storage in the two states, whereas this year there is a closer balance between supply and demand.

Arkansas' crude production is 53,000 barrels daily, or nearly 100 per cent greater than it was a year ago. This state is favorably situated in regard to southeastern markets, and the increased output has meant reduced outlets for Oklahoma, North Louisiana and Eastern Texas.

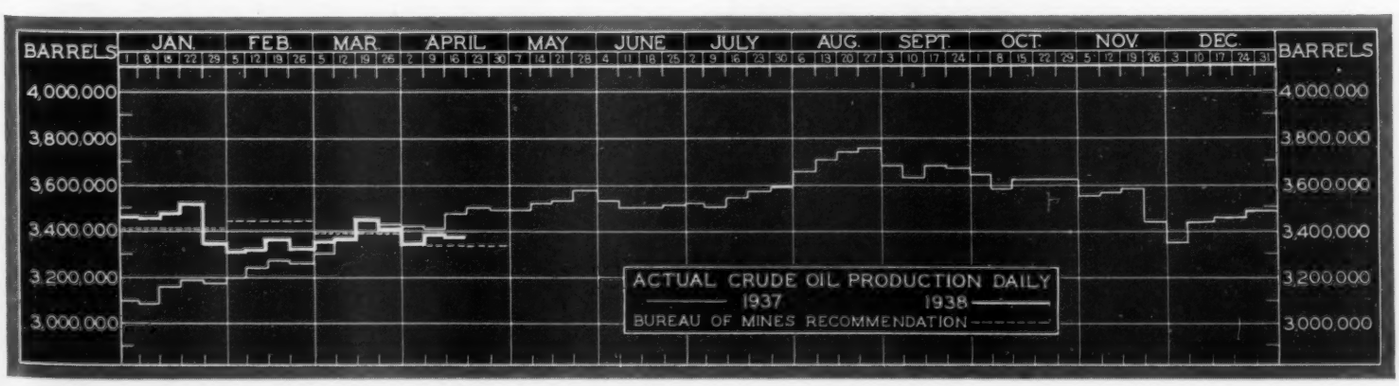
Among the remaining states, New Mexico's crude production is practically the same as a year ago and Texas, 3 per cent less. California, with a gain of 100,000 barrels daily, or 17 per cent, has by far the largest rise. So far this increase for which the state does not have adequate markets, has not affected directly the other oil areas in this country.

Developments at the Texas hearing Monday, and preliminary reports from other states east of California, indicate that May production will not exceed that of April. Reflecting the criticism that has been aimed at Louisiana recently for failure to do its part in the efforts to balance national supply and demand, it is understood that certain buyers and producers in the coastal section of the state expect to reduce the output voluntarily. Pipe-line proration now in effect by several companies in Oklahoma, Kansas, and New Mexico probably will continue. It is known in this connection that some of the largest refining organizations are projecting their early summer crude to stills on a basis which calls for little or no increases over present runs.

Daily Average Production for Week

	April 16 1938	Bur. Mines Apr. est.	Apr. state allowable	April 9 1938
Oklahoma City	118,200			137,300
Fitts	53,975			55,800
Remainder of state	325,550			324,900
Total Oklahoma	497,725	526,500	475,000	518,000
East Texas	431,347			430,598
West Texas	194,400			193,100
North Central Texas	107,400			106,550
Texas Panhandle	63,100			57,552
East Central Texas	100,953			101,500
Gulf Coast Texas	331,700			330,100
Southwest Texas	105,100			103,950
Total Texas	1,334,000	1,329,800	1,308,959	1,323,350
North Louisiana	80,455			79,175
Gulf Coast Louisiana	182,900			181,050
Total Louisiana	263,355	239,800	252,275	260,225
California	719,600	698,700	698,700	713,500
Kansas	149,925	173,000	173,000	158,875
Arkansas	53,420	40,000		53,490
Eastern fields	140,600	132,600		141,800
Michigan	51,838	51,400		52,326
New Mexico	108,020	106,000	105,100	108,000
Rocky Mountain area	65,060	63,900		63,070
Total United States	3,383,543	3,361,700		3,392,636

Decrease, 9,093 bbls. daily.



SPARKS FROM THE NEWS

SALT WATER DOMES

Having found practically all the salt domes on land, Texas Gulf Coast operators have extended their search into the water, and last week No. 1 in the Gulf of Mexico was found.

AROUND THE GLOBE

The 25,000 completed wells in East Texas placed end to end would extend 70 per cent of the distance around the globe. With more wells drilling than in any other area, the 30 per cent gap will be closed before the field folds up.

REAL TEST

Mexican labor is operating the producing and refining properties. The real test will come when new oil has to be found and plants have to be modernized.

OIL MIRAGE

Derrick of Mid-Continent Petroleum Corp. No. 2 Columbia Wetzel in Ramsey pool, Oklahoma, mirrored in slush pit short time after it started flowing 500 bbls. hourly last week

UNANIMOUS

The head of a state jobber association comes out for the Interstate Oil Compact. This practically makes it unanimous.

ENCOURAGING

When the jobber, receiving a quotation on gasoline, says, "I can get it for less," the market is soft. When he doesn't it's firm. Right now he doesn't.

MARKETS

The 10,000,000-foot gasser completed in Ohio is more important than one of several times that capacity in the Mid-Continent. The Ohio owners have an outlet for the gas.

DANGEROUS

One observer says he hopes they do not find oil in Nebraska. He fears it will end the state's commendable record of governmental economy and low taxes.

STILL AT IT

Kansas operators may not be able to produce them but they can still find them. Four new pools were opened last week.

NO WORRIES

The owners of the plugged-back No. 1 Wasco in California not only have the world's deepest producer, but also do not have to worry about deeper pays.

MARGINS

The refiner, with his operating margin half what it was a year ago, looks with envy at his jobber and dealer customers, still getting the same guaranteed margins (from him).

THE LOW-DOWN

Texas and Louisiana have been alternating daily in pointing out each other's weaknesses in the application of proration. If taken seriously, both will profit.

CONVENTIONITIS

Conventions hit a new peak for the year the past week with five under way, extending from California to Pittsburgh.

Class Consciousness in Oil Industry

By W. T. HOLLIDAY
President, Standard Oil Co. of Ohio

W. T. HOLLIDAY

The oil industry has received more than its share of outside criticism and attack and has become somewhat used to that unpleasant experience. In the last two or three years, however, a new source of attack has developed, to-wit, an attack upon the industry by its own members. There has grown up a class consciousness within the industry which has developed characteristics of what we might call civil war.

Of course, there has always been rivalry among the different divisions of the industry to get or retain a larger share of the industry's total revenue. There never has been a time when producers were not insisting that they should receive more from the refiners for their crude oil, and when the marketers were not insisting that the refiners should yield them a wider margin. Only the pipe line department, supported by the fixity of published tariffs, has been free from this constant rivalry.

There is, therefore, nothing new nor wrong in rivalry among the producing, refining and marketing divisions of the industry, and there is nothing disturbing about the fact that such rivalry is still continuing except the fact that there has been developing in that rivalry a quality of bitterness and recklessness which is inviting outside political intervention, which may ultimately result in throwing the entire industry into the arms of the government, state or national, or both.

Undoubtedly the urge for those groups to carve out and hold on to a given position in order to obtain security, at the expense of government intervention, arises largely from the bitter experiences of the recent depression and the political temper of the times. Unfortunately for the security point of view, however, we seem unable to stabilize the economy as a whole, and there is an old axiom in arithmetic that the sum of the parts cannot be greater than the whole.

Economic forces move as a result of the basic conditions of the industry as a whole; but when any particular group in the industry feels too keenly the uncomfortable effect of that economic pressure it is natural for them to become angry and blame their difficulties upon other people instead of upon economic forces. When a person is suffering he is not in any condition for the exercise of logic, and if a man is suffering he is apt to be reckless in reaching out for a means of relief.

What we need is more tolerance and sympathy toward each other and more consideration of the industry as a whole. There has got to be a spirit of fair treatment and give and take or we will get nowhere toward a solution of our problems, but instead will merely provide fuel for political fires or experiments in governmental control or operation of the industry.

Cause of Troubles

The basic cause of our various troubles is not the people in particular branches of the industry, because those people are all quite normal persons and behave just about the same as others would do under the same conditions. The essential cause of our troubles is the supply factor, an excessive production of crude oil and new wells, an excessive refining capacity and refining production, and an excessive supply of marketing outlets.

Proration, as administered, has resulted in a rigidity of crude oil price which so far has protected the production division from the immediate consequences of over-supply; published tariffs protect the pipe lines; and the rigidity of margins has largely protected the independent marketing branch of the industry, so that the refining division, squeezed between the upper and lower millstone, has borne almost the entire effect of unfavorable economic forces ever since the present method of proration became effective.

It should not be expected that the oil industry should be exempt from the vicissitudes of price changes to which all other industries are subject. Even with the most perfect balance of supply and demand the prices of the oil industry's products are bound to go up and down in response to purchasing power, the value of the dollar, costs, capital requirements and all the general conditions which affect prices generally. (As a matter of fact, the gross realization for the products of crude oil has not declined in recent months as much as the average price decline of commodities generally.)

The question remains, however, as to how the effect of these inevitable price changes shall be borne by the various divisions of the industry. There should, it would seem incontrovertible, be some equitable sort of a sharing. The history of the past several years, however, shows that with the rigidities of crude oil prices, pipe line tariffs, and marketing margins, it has been the refining division which has had to bear the bulk of depressive effects.

I do not wish to seem to be tendering any controversy or criticism of our friends in any division of the industry. I do not want to be construed as saying that crude oil prices are too high, or marketing margins too wide, although I do insist that pipe line tariffs are inordinately excessive. I wish all divisions of the industry could make more money!

But I do wish to emphasize that one of

Holliday Says:

What we need is more tolerance and sympathy toward each other and more consideration of the industry as a whole.

The history of the past several years, however, shows that with the rigidities of crude oil prices, pipe line tariffs, and marketing margins, it has been the refining division which has had to bear the great bulk of the depressive effects.

If we cannot solve this problem of equitable sharing by ourselves, the government will attempt to solve it for us, to the detriment of us all, by coming to the assistance of any divisions of the industry adversely affected by government helping in some other division.

In 1937 the Refinery Index up to November 1 averaged 54.7 cents but due to the rapid decline in product prices this refinery index dropped in November to 44.8 cents and in December to 39.8 cents and reached a low in March of this year of 32.2 cents.

Unless our industry can reachieve and maintain flexibility we can hardly hope to continue as an integrated industry and a free enterprise.

our industry's major problems today is the equitable distribution of the industry's gross revenue among its divisions, to the end that no particular division be unduly oppressed. We need to be especially concerned about this problem if there is any unnatural or artificial fixing of the sharing of the industry's gross income by its divisions through rigidities emanating from government supervision or assistance. If we can not solve this problem of equitable sharing by ourselves, the government will attempt to solve it for us, to the detriment of us all, by coming to the assistance of any divisions of the industry adversely affected by government helping in some other division.

At the present time the jobbers and dealers have become articulate to the point of vociferousness. The unintergrated refineries are relatively few in number compared with the thousands who are engaged in marketing and production, and little has been heard from them in the midst of the present internal conflict. As an officer of an unintegrated refining company I would like to speak on behalf of that group in our industry. There seems to be a misconception of the situation of the refining division of the industry, for we hear the charge frequently made that refinery marketers are subsidizing their marketing department out of refining profits, when the figures clearly show that for some little time recently there have been no refinery profits, and that the refining division of the industry for a good many years has been the least profitable in the industry and has gone through long periods of losses. It has constantly been subjected to the hazards of the squeeze between rigid crude oil prices and pipe line tariffs on the one hand and fluctuating product prices in the sensitive wholesale tankcar markets on the other.

Refiners' Situation

The situation of the refining division is clearly shown by the Refinery Index which is published each month by the National Petroleum News. This index shows the margin between the posted well prices for 36 gravity crude oil in Oklahoma and the Oklahoma wholesale tankcar prices of typical products of a barrel of crude oil. This is the margin between the posted well price for 36 gravity crude oil in Oklahoma and the Oklahoma wholesale tankcar prices of typical products of a barrel of crude oil. This is the margin out of which an Oklahoma refinery must endeavor to achieve a profit after paying the charges for gathering and transporting the oil from the well to the refinery and all of the manufacturing expenses and overheads of every kind. It is rather generally accepted, and this was supported by the studies made by code authorities during the NRA, that such a refinery needs at least 55 cents a barrel to cover such costs and expenses, and some claim that the amount is perhaps as high as 60 or 65 cents. The Oklahoma refinery situation is fairly representative of the economic condition of the entire refining division, so that we may say with reasonable accuracy that when the Refinery Index is above the range of 50 to 55 cents the refining division is probably operating at a profit, but that when the index falls below that range the refining division is probably operating at a loss.

My own organization has calculated this index upon the same basis back to 1928. It may be of interest, therefore, to you refiners to examine the following refinery index figures from 1928 to note the margin within which the refining division has had to operate in those 10 years. These figures are as follows:

Margin between wholesale value of typical refined products of an Oklahoma refinery versus well price of 36 gravity Oklahoma crude oil: 1928, $0.627; 1929, $0.631; 1930, $0.468; 1931, $0.345; 1932, $0.353; 1933, $0.443, 1934, $0.352; 1935, $0.531; 1936, $0.561; 1937, $0.526; 1938, $0.326.

Refinery Index

In 1937 the Refinery Index up to November 1 averaged 54.7 cents but due to the rapid decline in product prices this refinery index dropped in November to 44.8 cents and in December to 39.8 cents and reached a low in March of this year of 32.2 cents. From the foregoing figures it is apparent that in the ten years from 1928 to 1937 inclusive the refining division had two good years, to wit, 1928 and 1929, and from the latter part of 1935 to the latter part of 1937 had a moderately profitable period, but that the other five years, from 1930 to 1934, were clearly unprofitable, and that for the last five months the refining division has had to operate at a loss. In fact, the refinery index for the last four months shows that the refining division in this recent period has had to operate within a narrower margin than that of any year since 1928, the present margin being even below the sad years of 1931, 1932 and 1934.

The present situation is not due fundamentally to over-production of refined products but rather to the over-production of crude oil and production capacity. Refinery gasoline stocks in 1937 rose about 14,000,000 barrels and heavy fuel oil about 9,000,000 barrels, but during the same period crude oil stocks increased about 18,000,000 barrels. It is rather immaterial whether excessive production is in the form of crude oil or finished products since crude oil can be converted into finished products so promptly. From the point of view of whether there has been over-production of crude oil one must consider the total additions to stocks of both crude oil and refined products. The total increase in stocks of crude oil and its products in 1937 clearly shows that there has been over-production of crude oil, and, as a matter of fact, crude oil production in most of the leading oil states operating under proration exceeded the allowables set by the state authorities in practically every month of the year.

Even these increases in above-ground stocks do not tell the whole story. They were symptomatic of the whole general tendency toward over-supply which, it is becoming clearer, had been in the making for a couple of years. For example, the number of oil wells drilled in 1937 increased by 28 per cent over 1936 and by more than 50 per cent over 1935. As a result of the drilling of new wells in 1936 and 1937 the proven available crude oil reserves have been greatly increased to higher levels than ever before.

Dangerous Trend

Regardless, therefore, of whether you believe that the present above-ground stocks in terms of number of days' supply is excessive, the whole trend has been unmistakably in the direction of excessive over-supply. One of the functions of price is to check such a trend, and the recent price declines, therefore, in the face of relatively declining demand, were inevitable.

(For those who are accustomed to thinking of the oil industry's over-expansion as being chiefly in the marketing end, it is interesting to note that there has been no such increase in the supply of service stations and that some of the statisticians have called attention to the fact that for every service station in his country there are at least two crude oil wells. It is certainly to be hoped that our service stations will not attempt to preserve this ratio of two to one but will be willing to accept a larger family.)

In spite of all this basic over-production and the resultant reduction in prices of finished products there has been no reduction in the share of the industry's gross revenue enjoyed by the production and pipe line divisions and only a slight reduction in the marketing margin, so that almost the entire burden of the decline has fallen upon the refining division. A number of unintegrated refineries already have had to close.

Grave Problem

I have simply been endeavoring to present what I believe is a very grave problem which requires careful and sympathetic consideration by all parts of our industry. I wish that it were possible for the industry as a whole and all of its component parts always to make a profit, but under the system of free enterprise that is manifestly impossible. Regardless of how perfect the coordination within our industry might be, prices for our ultimate products inevitably must go up and down in response to general conditions. An excellent example of this today is the decline in the price of heavy fuel oil as a result of the general industrial depression.

Even if a reduction in prices may be primarily due to the actions of one particular division of the industry, we must recognize that we are a part of an unusually closely integrated industry in which there is really a single continuous process from crude oil production to final delivery of products, and that, therefore, the fortunes of the various divisions of the industry are so bound together that under a free operation of economic forces we must share prosperity and adversity together, regardless of its cause, except in so far as the policy of Public Utility and Interstate Commerce Commissions prevents.

THE WORLD'S DEEPEST PRODUCER

The April 28 issue of The Oil and Gas Journal will feature a description of Continental Oil Co.'s No. 1 Wasco in Kern County, California. This well was not only drilled to a record depth of 15,004 feet, but in a plugging back operation has been completed a flowing well from the deepest horizon that crude oil has ever been obtained.

You will be interested in the first-hand information obtained by T. P. Sanders, the Journal's California engineering representative, regarding this remarkable drilling and completion operation.

The latest field report with map covering the well will be found on page 90 of this issue.

Stafford County Operators Set Fast Pace to Save Leases

By DAL DALRYMPLE

Photo, Stafford Courier

Stanolind No. 2 Volker, Zenith, flowing into pits

The Kansas oil play has swung to Stafford County, now setting a fast pace in field activity. Drilling in other leading Kansas areas has been sharply curtailed since the first of this year, due to excessive production and other factors, but operators in Stafford County have been exceedingly busy with indications they will continue to set a fast pace throughout 1938.

Headlines hint at the story: Stafford County Paces State in New Work; Extend Deep Sittner Pay; Eleven New Tests Start at Zenith; Stafford Gets New Oil Pool; Start South Stafford Wildcat; Drach Pool Due for Extension; New Production in St. John Area; New Wildcat North of Richardson Pool; Townsite Play Starts at Zenith—and so on, number without end, as trade publications, newspapers, and field scouts tell of developments in this fast-stepping western Kansas district.

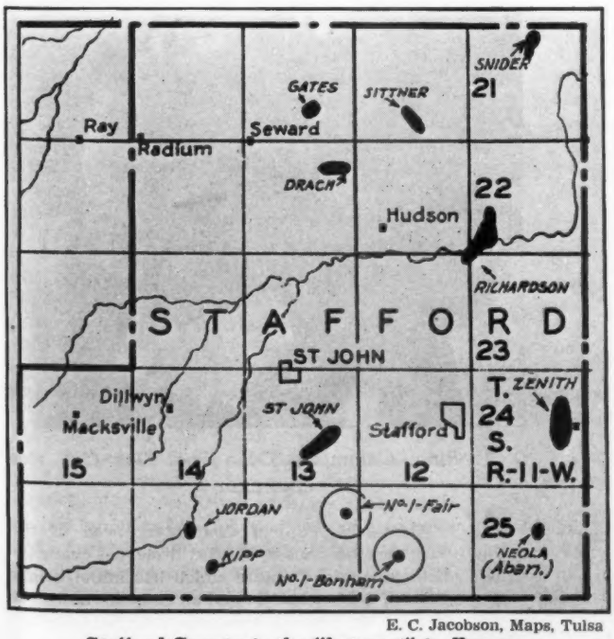
Why all this activity in Stafford County, when work is being curtailed in other flush areas of Kansas? The question is a natural one and easy to answer.

Many short-term leases are near expiration, and numerous leases taken in 1928 and 1929, when leasing in Kansas was at its height, expire this year or next. Operators, desiring to protect their leases, are going ahead and drilling before expiration dates arrive.

The leasing campaign of yesterday extended southward from Russell County into Barton, thence into Stafford and on down into Pratt and Barber counties. The drilling campaign of today seems to be following the same course southward. Last year Barton County paced the state in discovery and development, as operators moved to protect leases nearing expiration dates. This year the activity has engulfed Stafford County. The next two years, Kansas observers believe, will see the activity spreading into Pratt and Barber counties, where expiration dates soon will be rolling around.

The Barton County campaign of 1937 resulted in the discovery of numerous pools and extensions of proven areas. Work still is going forward in that county, but at a more moderate pace.

The Stafford County activity of 1938 has resulted in several discoveries and extensions to date, with the year not half gone. Predicting oil discoveries is about as uncertain as forecasting weather in some of the southwestern states, yet a guess that several more pools may be opened in Stafford County before 1938 has run its course is in order. At least, oil men who have studied the county and its formations are spending good money in the belief that more pools await discovery in that county.



E. C. Jacobson, Maps, Tulsa

Stafford County is the "hot spot" in Kansas

The two most recent Stafford discoveries opened pools in the southern part of the county.

One, the National Refining Co. No. 1 Bonham, SW SW SE section 28-25-12w, was listed as a completion at the week-end. It is on a farm-out by Stanolind Oil & Gas Co., located about 8 miles south and west of the town of Stafford. On completion test the wildcat made potential of 330 bbls. of oil daily from Arbuckle lime at 4,200-4,212 feet.

The other, Continental Oil Co. and associates No. 1 Fair, CNL SW section 12-25-13w, is about 8 miles southeast of St. John. On early tests some water appeared with the oil, but on latest report it swabbed 279 bbls. of oil and no water in five hours, without lowering the fluid level below 2,000 feet. Operators still were testing. It found Arbuckle lime at 4,153 feet and was bottomed at 4,162½ feet. Several wildcats in the county are at various stages, some nearing decisions, others just getting started. They include:

Active Wildcats

Stanolind Oil & Gas Co. No. 1 Carlisle, NE SE SW section 22-25-12w, about 7 miles southwest of Stafford.

Knight & Cohen No. 1 McNickle, SE SE NE section 2-24-11w, some 2 miles north of the Zenith pool, on the east side of the county.

Austin Drilling Co. No. 1 Slade, NE NE NW section 35-25-12w, 8 miles south of Stafford, near the Pratt County line.

Indian Territory Illuminating Oil Co. No. 1 Smith, SE SE NE section 29-21-11w, some 6 miles north of the Richardson pool and south of the Snyder pool.

Cardinal Oil Co. and others No. 1 Fischer, SW NW SW section 31-21-12w, between the Sittner, Drach, and Gates pools, and 6 miles northwest of Hudson.

Continental Oil Co. and Phillips Petroleum Co. No. 1 Curtis, SE cor. section 26-24-13w, south of the St. John pool.

Zenith Is Busy

The Zenith pool, adjacent to the village of Zenith and near the Reno County line, is one of the busier fields in Kansas. It holds the distinction of being the first Kansas pool in which well spacing has been sought, the application for a Zenith spacing order now pending before the corporation commission.

The pool was opened late in 1937 at Stanolind Oil & Gas Co. No. 1 Hartnett, NE NE SE section 23-24-11w, which flowed at the rate of 60 bbls. of oil an hour from Misener sand, the producing horizon in Zenith wells. Twelve producers have been completed, the pool has been extended both northward and southward from the discovery, and operations have started on the townsite, immediately east of the pool. Production is found at around 3,800 feet.

The nine Zenith producers listed as completions when the April 1 report of the corporation commission was issued had total potential of 12,689 bbls. of oil daily.

At the week-end the pool appeared to have been defined on the south at a well in NW SW NE sec-

(Continued on Page 30)

Norwood P. Johnston, Pittsburgh, and S. Pirson, Pennsylvania State College

Methods of Sec
Featured Topic

By H. STANLEY NORMAN

PITTSBURGH, Apr. 19.—Secondary recovery methods and current drilling practices in the Appalachian district were thoroughly reviewed at the annual meeting of the American Petroleum Institute, Eastern District, Division of Production, in Pittsburgh April 14 and 15. Nearly 400 registered and at least 100 more attended most of the sessions.

Christy Payne, Jr., Pittsburgh, assistant to the vice president of Peoples Natural Gas Co., was elected chairman of the eastern district succeeding F. E. Eckert, Bradford, Pa., manager of Hanley & Bird, who became head of the advisory committee.

The two most widely used secondary recovery methods, water-flooding in shallow Pennsylvania fields, and gas recycling in West Virginia and southeastern Ohio, were discussed by two authorities on these topics. A. C. Simmons, Bradford, president of Simmons Oil Corp., delivered a paper on "Recent Developments in Water-Flooding" which held undivided attention of the membership. Striking similarity was shown by Mr. Simmons in the decline curves. Much emphasis was placed on the desirability of using water with the least possible amount of suspended material.

The cost of equipping water conditioning plants in the Bradford field, Mr. Simmons said, ranges from $4 to $6 per barrel daily capacity. In one five-spot project described by Mr. Simmons the cost of drilling and equipping input wells ranged around $4,000 per acre, but the average in the Bradford field varies from $2,500 to $3,500 per acre, indicating the extent of recovery required to make the projects economically successful.

High pressures are desirable in the extraction of oil by water-flooding due primarily to the fact that each sand permeability has a definite admittance or threshold pressure and the use of higher pressures will admit water to strata of lower permeability, Mr. Simmons said. Due to depth and rock formations overlying an oil sand, there is, for each property or flood project, a definite critical pressure. Applied pressures in excess of the critical will cause heaving or fracturing of the formation with direct water bypassing between water well and oil well. In the Bradford field it appears that the critical or maximum safe pressure is 1.5-1.75 bbls. per foot of depth.

Use of gas for repressuring in West Virginia and southeastern Ohio was described by E. H. Tollefson, Clarksburg, W. Va., Hope Construction & Refining Co., whose paper was presented by A. R. McCamey of the same company. Mr. Tollefson said that air is used for repressuring only as a last resort due to the corrosive action on well equipment. He said experience had indicated that any field with a gas-oil ratio of more than 10,000 feet per barrel could not be successfully subjected to repressuring.

Stress was placed on the importance of starting the injection of gas at a moderate rate to avoid by-passing and to prevent driving the oil farther than the points of desired recovery. He cited an example in which the second row of wells removed from the gas input hole received all the benefits of increased production because the rate of injection had been pitched on too high a scale.

Repressured fields in the West Virginia and southwestern Ohio district have shown increases where the peak production ranges from two to nine times the average production at the time repressuring operations were started. Results indicate the average field will increase to a peak rate of production of three to four times the rate at which the field was producing when repressuring was started. The results are based on pools producing from the Cow Run, Maxon, Keener, Big Injun and Berea sands.

"Drilling and Operating Practices in Oriskany Sand Fields of Kanawha County, West Virginia," was the topic of a paper by O. W. Van Petten, Charleston, W. Va., superintendent of Columbian Carbon Co. Considerable attention was given to the problem of freezing off the sand faces in Oriskany fields. The Kanawha County Oriskany gas field contains approximately 225 completed wells, all of which have been drilled with cable tools. Wells average initial production of 5,000,000 feet per day and pressure varies between 1,000 and 2,000 pounds. The average cost of completing Oriskany wells is approximately $30,000, Mr. Van Petten said. Due to the high rock pressure some difficulty has been encountered in wells and lines "freezing up." Maintenance of substantial back pressure has retarded the freezing tendency and methods have been found to remove the condensate which is suitable for market as gasoline with small amount of treatment.

D. T. Ring, Columbus, Ohio Fuel Gas Co., vice chairman

James E. Pew of Charleston, head of the Virginian Gasoline & Oil Co., discussed characteristics of the condensate which has initial boiling point of 100° to 110° F. and an endpoint of 400° to 420° F. Mr. Pew said the condensate had an octane rating of 50 and a vapor pressure range of 7 to 16

F. E. Eckert, retiring chairman, manager Hanley & Bird, Bradford, Pa., seated, discussing the program with Carl A. Young, Dallas, Tex., secretary of the division of production

ondary Recovery at Eastern A. P. I.

M. G. Gulley (center), Pittsburgh, geologist Gulf Oil Corp., and Edward Baltrusaistis, assistant geologist, and David A. Probst, laboratory assistant

pounds. Gravity is 65 degrees A.P.I. In several respects the condensate differs from natural gasoline, particularly in vapor pressure.

Mr. Van Petten said his company has reached the conclusion that baffle plates in the christmas-tree connections are the most satisfactory manner of handling the condensate which reaches its lowest

John G. Montgomery, Oil City, Pa., registering

temperature at this point and, therefore, all the condensed material is in condition to be removed.

Hugh Burdett, of Godfrey L. Cabot Co., said experience in the Oriskany sand wells dictated use of bottom hole chokes which have proven satisfactory. The Cabot company uses step ladder drips for removal of condensate before gas is delivered to the main line for transmission to consuming point. Effectiveness of the system was said by Mr. Burdett to be almost complete. Out of a total of 5,000 gallons of water removed from lines of the company all excepting 49 were recovered in the gathering system. By installing adequate drips the bottom hole choke method of producing in Kanawha County was held quite satisfactory.

S. H. Hamilton, Philadelphia, Atlantic Refining Co., presented a discussion on "Oriskany Crude Oils." The crudes, Mr. Hamilton said, from three widely separated Oriskany fields in Kanawha County, West Virginia; Guernsey County, Ohio, and Allegany County, New York, are remarkably constant in character. They are all light colored crudes ranging in optical density from 10.0 to 12.4 with an appearance from amber to red green. The A.P.I. gravity is from 42.1 to 46.4 degrees. The sulfur content is low, ranging from 0.15 to 0.19 per cent. Oriskany crude is a typical paraffin base (wax bearing) type of oil. The marked similarity of the three Oriskany crudes indicates a common origin and a common filtration in strata of fuller's earth as the petroleum migrated from its source rocks to the reservoir sands of Oriskany age.

Transportation is one of the most troublesome problems in operating in Illinois, R. W. McIlvain, Jr., Olney, Ill., superintendent of the district for Pure Oil Co., said in his paper published on page 66, this issue.

F. W. Freeborn, Jr., Houston, Tex., Adams Oil & Gas Co., delivered a paper on "Oil Development in the Western Part of the Illinois Basin." Oil producing operations during the past year were described. The Clay City-Noble field of Wayne, Clay and Richland counties; the Patoka field of Marion County; the New Centralia field of Clinton County; the Beecher City field of Fayette County, and the Dix field of Jefferson County, were briefly reviewed and data were given on the type of equipment proving most popular. All recent drilling in the area has been done with rotary tools, although spudders are frequently used for drilling in. Without mechanical delays it is possible to complete wells in the western part of the Illinois Basin in two weeks. Customarily operators set about 250 feet of surface pipe and 7-inch O.D., or 5½-inch O.D. production string is set on top of the McClosky lime. The area now has nearly 200 wells and production is ranging above 20,000 bbls. per day.

"Natural Gas Reserves in the Appalachian Natural Gas Province," was the title of a paper delivered by E. E. Roth, Pittsburgh, Columbia Engineering Corp. Mr. Roth explained how gas reserves in the territory have undergone almost constant reduction since the start of the century. From an examination of each gas field in the Appalachian district, Mr. Roth estimated reserves now are approximately five trillion feet, or sufficient for approximately 16 years at the present rate of consumption. Need for additional discoveries, however, was pointed out, since all of the existing reserves could not be possibly produced in 16 years.

Charles Millikan, Tulsa, general superintendent of the production department, Amerada Petroleum Corp., gave a brief review of the operating and drilling problems in the Mid-Continent. He described the constant need for heavier and stronger equipment to attain the depths now necessary and touched upon the drilling of unnecessary wells.

W. E. Ferguson, Columbus, Ohio, Ohio Fuel Gas Co., read a paper entitled "Public Relations in the Lease and Right-of-Way Departments." Mr. Ferguson said every lease and right-of-way man in the oil industry is an ambassador of public relations. He expressed the opinion that land owners as a group are willing to cooperate for the improvement of conditions and if treated with consideration and fairness they can become a valuable "partner." Mr. Ferguson's doctrine for avoiding disputes with land owners is to pay a fair price for the property desired and to make certain the owner is completely advised of the use to which his land is expected to be placed.

"Back Crank Problems and Rod Line Pumping," was the title of a paper by J. C. Slonneger, Dallas, Tex., Continental Supply Co. Producers were urged to make more adequate analysis of their

Christy Payne, Jr., elected chairman, and J. J. Schmidt, vice chairman

problems before selecting pumping equipment to avoid trouble which usually develops from overloading.

E. V. O'Rourke, Columbus, Ohio, State University, put the question in his paper, "Will There Be Enough Oil?" Mr. O'Rourke took the position that constant developments in refining technology, improved recovery methods and possibility of extraction from shale deposits leave the country in a secure position as far as petroleum is concerned.

The new Eastern District officers are: Christy Payne, Jr., Pittsburgh, Peoples Natural Gas Co., chairman; F. A. Benkert, Pittsburgh, Peoples Natural Gas Co., vice chairman; T. H. Myers, Pittsburgh, Carnegie Natural Gas Co., vice chairman; D. T. Ring, Columbus, Ohio, the Ohio Fuel Gas Co., vice chairman; J. J. Schmidt, Cleveland, East Ohio Gas Co., vice chairman; O. W. Van Petten, Charleston, W. Va., vice chairman and J. A. Thompson, Bradford, Pa., Belmont Quadrangle Drilling Corp., secretary-treasurer.

The advisory committee is composed of the following:

F. E. Eckert, Bradford, manager Hanley & Bird, chairman; J. C. Askam, Findlay, Ohio, the Ohio Oil Co.; H. D. Atha, Mount Pleasant, Mich., Gordon Oil Co.; William Bell, Robinson, Ill.; S. J. Brendel, Pittsburgh, S. J. Brendel Oil & Gas, Inc.; F. M. Brewster, Bradford, Belmont Quadrangle Drilling Corp.; E. F. Clagett, Saginaw, Mich., Pure Oil Co.; P. H. Curry, Pittsburgh, South Penn Oil Co.; Forest D. Dorn, Bradford, Forest Oil Corp.; K. C. Heald, Pittsburgh, Gulf Oil Corp.; D. S. Keenan, Charleston, W. Va., United Carbon Co.; S. W. Meals, Pittsburgh, Carnegie Natural Gas Co.; J. G. Montgomery, Jr., Oil City, Pa., United Natural Gas Co.; J. H. Newlon, Pittsburgh, Equitable Gas Co.; Sylvian Pierson, State College, Pa., Pennsylvania State College; John Post, Oil City, Oil Well Supply Co.; Paul C. Price, Morgantown, W. Va., state geologist; C. C. Reed, Clarksburg, W. Va., Hope Natural Gas Co.; J. R. Reeves, Elmira, N. Y., Cities Service Co.; J. French Robinson, Pittsburgh, Peoples Natural Gas Co.; Frank Schauer, Pittsburgh Equitable Gas Co.; E. N. Smith, Pittsburgh, National Supply Co.; F. N. Speller, Pittsburgh, National Tube Co.; Don Wilson, New York, Columbia Oil & Gasoline Co.; R. T. Zook, Bradford, Sloan & Zook Co.

A. P. I. Program for Mid-Year Meeting at Wichita, Kans.

Highly technical papers on petroleum production, refining, research, fire and accident prevention, and related subjects are scheduled in the preliminary program for presentation before the American Petroleum Institute's Eighth Mid-Year Meeting at Wichita, Kans., May 23, 24, and 25.

The Institute's board of directors will hold one meeting, scheduled for Tuesday, May 24, in the Allis Hotel.

Members of the Institute will be guests Wednesday evening, May 25, at an informal dinner and entertainment sponsored by Wichita oil and supply companies.

The annual golf tournament, with medal play against handicap for the "J. Edgar Pew Trophy," is scheduled for Thursday, May 26, on the course of the Wichita Country Club, with the annual golf dinner in the evening.

The preliminary program follows:

Monday, May 23, 1938
Committee Meetings

Tuesday, May 24, 1938

9:30 A.M.

DIVISION OF PRODUCTION

PRODUCTION PRACTICE

(Allis—Lobby Floor Lounge, Ball Room)

(Sponsored by the Central Committee on Drilling and Production Practice.)

Papers on the following subjects are now under consideration by the program committee:

Pressure Maintenance on Flush Production.

Use of Dynamometers.

Practical Application of Depth-Pressure Measurements.

10:00 A.M.

DIVISION OF REFINING

REFINING PROBLEMS

(Lassen—Mezzanine Floor, Ball Room)

Elements of Waste-Water Separator Design — A Report of an Investigation Using a Model Separator. W. B. Hart, Atlantic Refining Co., Philadelphia, Pa.

Hydrogen-Sulfide Removal:

The Use of Sodium Phenolate for Hydrogen-Sulfide Removal. G. M. Carvlin, the Koppers Co., Philadelphia, Pa.

The Girbotol Purification Process. W. R. Wood and B. D. Storrs, the Girdler Corp., Louisville, Ky.

The Purification of Gases by the I. G. Alacid Process and the Recovery of Sulfur by the I. G. Claus Process. Hans Baehr, I. G. Farbenindustrie, A-G, Ludwigshafen am Rhein, Germany.

The Shell Phosphate Process for Removal of Hydrogen Sulfide. T. W. Rosebaugh, Shell Development Co., Emeryville, Calif.

10:00 A.M.

BOARD OF DIRECTORS

(Allis—Mezzanine Floor, Ingalls Room)

2:00 P.M.

DIVISION OF PRODUCTION

RESEARCH AND PRODUCTION PRACTICE

(Allis—Lobby Floor Lounge, Ball Room)

(Sponsored by the Central Committee on Drilling and Production Practice.)

Papers on the following subjects are now under consideration by the program committee:

Tentative Equilibrium Constants for Light Hydrocarbons.

Experiments on Fluid Capacity and Plugging of Oil-Well Screens.

Effect of Various Screen Patterns on Strength of Pipe.

Conservation of Gravity in the Production of Oil.

2:00 P.M.

DIVISION OF REFINING

REFINING PROBLEMS

(Lassen—Mezzanine Floor, Ball Room)

The Removal of Inorganic Salts From Crude Petroleum. W. P. Hawthorne and H. L. Bedell, Socony-Vacuum Oil Co., Inc., White Eagle Division, Augusta, Kans.

Laboratory Control of Desalting Processes and of the Corrosion of Distillation Equipment. L. L. Davis, Continental Oil Co., Ponca City, Okla.

Identification and Properties of Sraightrun and Cracked Residua. A. H. Bachelder and H. B. Wellman, Standard Oil Co. of California, San Francisco, Calif.

The Catalytic Hydrogenation of Octenes to Octanes. Shell Development Co., Shell Chemical Co., and Shell Oil Co., San Francisco, Calif.

The Antiknock Requirements of Automobiles. T. B. Rendel, L. E. Hebl, and R. J. Greenshields, Shell Petroleum Corp., Wood River, Ill.

Wednesday, May 25, 1938

9:30 A.M.

DIVISION OF PRODUCTION

DRILLING PRACTICE

(Allis—Lobby Floor Lounge, Ball Room)

(Sponsored by the Central Committee on Drilling and Production Practice.)

Papers on the following subjects are now under consideration by the program committee:

Well-Depth Measurements.

Care and Maintenance of Instruments Used in Drilling Operations.

Formation of Filter Cakes and the Filtering Characteristics of Drilling Muds.

10:00 A.M.

DIVISION OF REFINING

ENGINEERING PROBLEMS

(Lassen—Mezzanine Floor, Ball Room)

Application of Bailey's Theory to Tube-Stress Calculations. C. O. Rhys, Standard Oil Development Co., Elizabeth, N. J.

Closures for High-Pressure High-Temperature Operation. Fred Key, Key Co., East St. Louis, Ill.

New Developments in Petroleum Storage Vessels. D. E. Larson, Chicago Bridge & Iron Co., Chicago, Ill.

Nickel-Bearing Alloys Used in Petroleum Refining. B. B. Morton, International Nickel Co., Inc., New York, N. Y.

2:00 P.M.

DIVISION OF PRODUCTION

DRILLING AND PRODUCTION PRACTICE

(Allis—Lobby Floor Lounge, Ball Room)

(Sponsored by the Central Committee on Drilling and Production Practice.)

Papers on the following subjects are now under consideration by the program committee:

Current Practices in the Selection of Oil-Field Equipment.

The Calculation of Venting Requirements for Low-Pressure Oil-Storage Tanks.

Well-Spacing Problems in Kansas.

(Note: Immediately following this group session, the Central Committee on Drilling and Production Practice, J. T. Hayward, chairman, will meet in this same room.)

2:00 P.M.

ACCIDENT- AND FIRE-PREVENTION GROUP SESSION

ACCIDENT- AND FIRE-PREVENTION PROBLEMS

(Lassen—Mezzanine Floor, Ball Room)

Cooperation With Government—Its Opportunities and Responsibilities. H. E. Dischinger, Shell Petroleum Corp., St. Louis, Mo.

Contract Operations—A Problem in Accident Prevention.

7:00 P.M.

COMPLIMENTARY DINNER

(Forum—Williams and Water Streets)

The local oil and supply companies in Wichita have arranged for an informal dinner and entertainment at the Forum, for the out-of-town members attending the Eighth Mid-Year Meeting. It will be informal. Those who expect to attend will be requested so to indicate at the time of registration.

Rapid Gain in Demand for Chemical Derivatives

By MITCHELL TUCKER

DALLAS, Tex., Apr. 19.—The demand for synthetic products from petroleum derivatives is rapidly increasing and large new fields of chemical utilization are in the offing, petroleum chemists, attending the ninety-fifth annual meeting of the American Chemical Society, were told here today and Monday.

Statistics were presented showing plants now operating or under construction have a capacity sufficient to produce 550,000,000 gallons of synthetic motor and aviation gasolines yearly. Data also revealed a long list of old and new chemicals available from petroleum some of which are now being produced on a commercial basis.

Practice was mixed with theory in the several papers presented today at the meeting of the petroleum division. In the practical end it was explained that through the use of selective solvents in the processing of diesel engine fuels, substantially improved ignition qualities resulted. Another paper revealed that through the use of electric discharges a hydrocarbon may lose or add hydrogen to change its nature or it may polymerize or crack to form a different compound.

"The gasoline industry is now entering into its fourth phase with the production of synthetic motor fuels," Dr. Per K. Frolich, director of chemical laboratories of the Standard Oil Development Co., Elizabeth, N. J., said in addressing the general session of the society on the subject "Recent Chemical Developments in Petroleum Technology." The petroleum chemist has accepted the challenge of an increased supply of gaseous fuels. However, as we are reaching these high levels, it is becoming increasingly difficult to continue the upward trend without departing from the petroleum industry's policy of not letting the consumer bear the burden in the form of added cost. It is probably safe to conclude that there will be an increasing demand on chemistry to help solve the problem of further improving gasoline quality.

"The production of an impressive line of new and old chemicals using ethylene as the starting material is too well known to need further elaboration, and it is reasonable to assume that similar series of compounds will be developed from other hydrocarbons.

"It is also apparent that these newer activities in petroleum chemistry are of far-reaching consequence to other branches of the chemical industry, as evidenced by the increasing demand for large quantities of solvents and a wide variety of inhibitors, and other addition agents to be used in fuels and lubricants. Moreover, the efforts at chemical utilization of petroleum products are making available an increasing number of intermediates useful for further processing by other branches of the chemical industry.

"Considering that the United States is the world's leading producer of synthetic resins, it is particularly significant that the petroleum industry is capable of supplying raw materials and intermediates for the manufacture of a variety of resins. In the light of recent developments, this field promises to furnish an outlet for petroleum products on a large scale. For example there are 12 important resins and synthetic rubbers which either are, or could be, manufactured from petroleum products."

Stiles M. Roberts, W. Nelson Axe, and J. R.

Dr. J. C. Morrell, chairman of petroleum division, A.C.S.

Bailey of University of Texas described a method for isolating various nitrogen compounds contained in petroleum. They justified deviating from the older methods for isolating nitrogen compounds from coal tars by saying that petroleum base fractions are too complex to permit this.

In their late investigations they used what has been termed the cyclic process for resolution which employs the reversible reaction.

$$\text{base} + SO_2 + H_2O \rightleftharpoons \text{base} \times H_2SO_3$$

On the left side of the equation sulfiting took place and on the right degassing took place. Likewise on the left there is fractional neutralization and on the right fractional acid extraction is involved. The authors also stated that a more general method termed "cumulative extraction" found broad application.

Solvent Extraction of Fuels

Recognizing the rapidly growing demand for high-speed-diesel engine fuels J. C. Morrell, chairman of the petroleum division, along with C. G. Dryer, J. A. Chenicek and Gustav Egloff, all of the Universal Oil Products Co. explained how sulfur dioxide and furfural may be used as solvents to produce diesel fuels having greatly improved ignition properties and without altering other physical properties of the oil. They indicated that the extraction of straightrun fuels caused less improvement than cracked. Sulfuric acid treatment generally resulted in a negligible increase in ignition quality while hydrogenation of low-sulfur fuels produced fuels of high ignition qualities.

In the paper the authors pointed out: "Between 1932 and 1936 the annual sale of diesel horsepower increased from 130,000 to 1,830,000, and 90 per cent of the installations in 1936 were engines of less than 100 horsepower.

"These smaller high-speed engines will require approximately an additional 7,500,000 bbls. of fuel on the basis of 4.5 bbls. per horsepower per year. Most of this additional fuel will necessarily be of higher ignition quality than that used for the large slow-speed engines because the high-speed engines operate under widely varying conditions of load and speed.

"A survey of 25 manufacturers of high-speed diesel engines showed that fuels with a minimum cetane number of 45 are recommended for high-speed engines.

"Straightrun fuels produced from various crudes appear to have a sufficiently high cetane number to operate most high-speed engines. Cracked fuels, derived from crudes of various fields, however, have an average cetane number of 35 which is well below that recommended. A fuel of sufficiently high ignition quality for most purposes probably can be made by blending straightrun and cracked fuels in the proper proportions. However, fuels for aircraft engines besides having high ignition quality must have other desirable properties such as low cloud and pourpoints. Straightrun fuels which have high ignition quality unfortunately have high pourpoints and consequently cannot be used at low temperatures such as those accompanying use in aircraft. Cracked fuels on the other hand have low pourpoints but also low ignition quality.

"The need for high ignition quality low pourpoint diesel fuels necessitates the use of special refining process. The following are possible methods of treatment: Solvent extraction, hydrogenation, acid treatment, mild cracking, dewaxing, addition of dopes, addition of pourpoint depressors, blending of straightrun and cracked fuels, and polymerization.

"The work included here is concerned primarily with the first of these methods, namely, solvent extraction which is considered most important. Solvent extraction of cracked diesel fuel from the Pennsylvania, Mid-Continent, Texas and California fields produced raffinates of substantially improved ignition quality without appreciable change

(Continued on Page 32)

Petroleum Industry Electrical Association Convention

HOUSTON, Tex.—Approximately 250 members from all parts of the country attended the tenth annual convention of the Petroleum Industry Electrical Association here, April 13 to 15. Officials said it was the most successful meeting ever held.

E. M. Smith, United Gas Pipe Line Co., vice president of the association, was elected president, succeeding P. F. Davis, Texas Co., Tulsa. D. W. Sims, Continental Pipe Line Co., Ponca City, Okla., was elected vice president, and H. E. Browne, Independence, Kans., was reelected secretary and treasurer. Houston was selected as the convention city for 1939, the meeting to be held on the second Wednesday in April.

New officers of the Petroleum Industry Electrical Association: H. E. Browne, reelected secretary and treasurer; E. M. Smith, president, and D. W. Sims, vice president

The opening morning session was devoted largely to administrative and executive matters. R. B. Roaper, Humble Pipe Line Co., chairman of the safety committee, presided at the safety meeting in the afternoon. George Wamsley, superintendent of utilities at Baytown, and William Grant, Jr., safety engineer, both of the Humble Oil & Refining Co., spoke. Mr. Wamsley led an open forum on hazards of electrical shocks and the effects of electrical currents on the heart. He said experiments on animals showed smaller current does more damage than higher current. Mr. Grant said from 15 to 25 per cent of accidents in the electrical division of the industry were caused by inadequate or faulty lighting. His paper covered electrical developments in safety equipment and the progress in flood lights.

J. F. Collerain, Houston Pipe Line Co., delivered a paper on "Rural Electrifications," and L. E. Adler, Magnolia Pipe Line Co., led an open discussion on new equipment and its applications.

Thursday morning, J. A. Parrott, of New York, engineer of special services for American Telephone & Telegraph Co., spoke on "Some Engineering Considerations in the Use of Telephone Repeater and Carrier Systems." Hezzie Clark, Humble Pipe Line Co., read a paper on "Telegraph Carriers."

The afternoon session was devoted largely to general discussion of cathodic protection of underground pipe lines. Two papers were read. W. B. Poor, United Gas Pipe Line Co., spoke on "Electrical Protection, Methods, Results and Application," and O. C. Mudd, Shell Petroleum Corp., on "Corrosion of Underground Structures." It was brought out in the general discussion that much experimental work remains to be done.

The annual stag banquet was held at the Rice Hotel Thursday night when members were addressed by W. L. Childs, president of the Houston Chamber of Commerce. Mr. Childs said the petroleum industry permeates every phase of everyday life, is fundamental to business and showed surprising ability to weather depression. Business men, he said, have supplied the inspiration and managing ability for petroleum's great achievements, recalling that it was a business man, George H. Bissell, who really conceived and managed the Drake well 79 years ago.

"The petroleum industry must acknowledge its debt to business, but it has paid that debt with compound interest. Each milestone of its accomplishment reflects the interdependence of the technical and the business man."

A feature of the convention was the large display of new equipment. Thursday afternoon manufacturers' representatives formed an association, to be known as the Petroleum Industry Electrical Suppliers Association. George Freeman of Houston was named president and Guy Griffith of Dallas, vice president. They will meet in conjunction with the P.I.E.A. each year.

Mexican Situation No Nearer Solution During the Week

NEW YORK, Apr. 18.—The United States is said to have dispatched two more notes on the Mexican oil problem, but the texts of the notes have been held confidential.

Rumors were current in American oil circles that President Cardenas had signed or was considering signing a second expropriation decree covering properties of all other oil companies untouched by that of March 18. This action would be in direct opposition to the official expression of the United States government which asked that no further expropriation be employed until a satisfactory basis of settlement had been reached.

In contrast to the United States' attitude which officially recognized validity of the expropriation law, the British government made an unqualified demand for return of the properties and said the allegations were unfounded that expropriation had been in the public interest. The British reaction to Mexico's flat refusal to entertain demands for return of expropriated properties is yet to be disclosed. The British attitude will prove an important point in the final disposition of the case since an embargo by the United Kingdom would make Mexico's marketing problem even more remote from a solution. Great Britain has been among the largest consumers of Mexican petroleum and products for several years and occupies an important position in maintaining the industry on a satisfactory basis.

Only one definite trade for Mexican oil has been reported since the properties were seized. W. R. Davis, head of Parent Petroleum Interests, has arranged to accept about 1,500,000 bbls. of Mexican oil in exchange for steel tubular goods produced in Germany. Part of the oil will be delivered at Thames Haven, England, and lighter products at Dunkirk and Antwerp. It was reported in some circles that the barter payment for steel goods is to be made from oil produced by properties previously held by the Mexican government.

Mexico's congress is now engaged with the problem of indemnification, but little importance is attached to the reports that women are contributing jewelry and that bonds ranging in value from 50 centavos to 1,000 pesos are selling rapidly among school children and the Mexican public generally.

Barnsdall Cuts Purchases in Osage and Tulsa Counties

A 25 per cent reduction in crude oil purchases of Barnsdall Oil Co. in Osage and Tulsa counties, Okla., effective at 7 a.m., April 21, was announced April 20 by E. B. Reeser, president. Thereafter until further notice the company will take 75 per cent of its March pipe line runs from its connections in the two counties.

"We regret that conditions over which we have no control have reduced the requirements of the Barnsdall refinery, necessitating this reduction in our crude oil purchases," the announcement said.

Lease Sale of 1,920 Acres In Eddy County, N. Mex.

A lease on 1,920 acres in sections 23, 24 and 25-19-28, Eddy County, was bought at the last New Mexico oil and gas lease sale by Continental Oil Co. for $2,117. The sale was held by the commissioners of the land office at Santa Fe. Continental also bought tracts in sections 9, 15, 20 and 19-17-29, Eddy County. Ohio Oil Co. took a tract in NW section 20-11-38, Lea County; Shell Petroleum Corp. bought tracts in sections 14-16-35 and 25-17-36, Lea County; Ralph Gallinger, Hollywood, Calif., bought tracts in sections 36-17-36, Lea County, and 7 and 13-19-28, Eddy County; and J. S. Anthony, Los Angeles, took sections 9, 15, 19 and 20-17-29, Eddy County.

Sinclair Prairie Reduces Allen-Bourbon Purchases

Sinclair Prairie Oil Marketing Co. will not take crude oil from connections in Allen and Bourbon counties, in eastern Kansas, after May 1, Nelson K. Moody, president, announced. It was said that the elimination of 400 to 500 bbls. of oil being taken from small stripper wells in the area was made imperative because of lack of refinery market for that type of crude oil, which ranges from 25 to 28 gravity. The oil, it was said, is more suitable for road oil than for conversion into gasoline and other products. Pools affected include Moran, Iola, and Humbolt.

Kansas Commission Hears Testimony on Spacing Plan

The Kansas Corporation Commission has taken under advisement an application of Stanolind Oil & Gas Co. and other major operators in the Zenith pool, Stafford County, for 10-acre spacing in that area. Testimony of proponents and opponents for the spacing plan was taken in a hearing in Wichita last week. Starting of tests on small tracts on Zenith townsite led to the filing of the application.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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Class Consciousness

While many will not be willing to go the whole distance with President W. T. Holliday of the Standard of Ohio in his analysis of present conditions in the oil business, including his suggested remedies, they must admit that he placed his finger on one obvious weakness.

Stressing the dangers inherent in "class consciousness" in the industry at the Cleveland N.P.A. meeting he contended there has been a tendency on the part of other branches to fix or enlarge their share of the total revenue of the industry at the expense of petroleum refining.

Federal and state conservation acts, with their resulting proration, have brought a stability to the producing branch that was not thought possible a few years ago. In the marketing end the jobbers and dealers have their guaranteed margins on which to operate, while in the transportation division fixed tariffs control the movement of crude and products by pipe line or rail.

These branches enjoy a partial or complete protection in operating their part of the industry. The refiner on the other hand has no such protection. He is caught between the producer who wants the highest price he can get for his crude and the marketing branch continuously clamoring for wider and wider margins and other concessions in the sale of the finished product.

Reflecting this situation, while the crude pipe line and marketing margins have continued relatively firm for the past year, the margin on which the refiner must operate has decreased from 25 to 50 per cent.

As President Holliday points out this presents "a very grave problem which requires careful and sympathetic consideration by all parts of the industry." He emphasized that, while the refiner is at present the one to suffer, unless some solution is found the whole industry will have to pay for this inequitable situation. It is inconceivable that a major industry can function with its manufacturing phases operating at a loss.

Giving full weight to the various remedies that have been suggested the fact remains that the fundamental cause is the failure on the part of refiners as a group to project accurately the markets for their products. This is clearly the duty of refiners and not of the producers of the crude oil. It is the mill operators who should and do determine the market for lumber and not the men who saw down the trees.

While a great deal has been said about the producing branch forcing refiners to take the crude which they overproduce, the fact remains that this is no longer the controlling factor in oil operations, as demonstrated in recent developments.

The great majority of integrated as well as non-integrated companies have realized the absurdity of operating their refining and marketing facilities simply to provide outlets for their wells. They have shown their willingness to cut back their production whenever their refinery connections show there is no outlet for the crude in the form of gasoline and other products.

Recently the refiners have reduced their operations and the producing branch is now engaged in curtailing its output in line with this lessened demand. The same thing could have been done last fall or during the winter months and the industry would not have the gasoline surplus that overhangs it today.

The greatest need of the industry is for the refining branch to determine and forecast the demand early enough so that operations throughout the industry can be adjusted to requirements. This responsibility rests squarely with the refiners, the one division of the industry that is free to make its own decisions, unhampered by outside regulation.

STAFFORD COUNTY

(Continued from Page 23)

tion 26-24-11w, one-fourth mile from production, which swabbed dry at 3,833 feet in Misener sand and was shut down. A well one-half mile west of production in NE cor. section 27-24-11w was running low structurally, while drilling in Misener sand at 3,910 feet and may limit the pool in that direction. Otherwise, limits of the producing area have not been ascertained.

Other Oil Fields

Other pools in the county, as listed in the April report of the corporation commission, with number of wells and pool potentials at the time the report was compiled, were:

Pool—	Township	Wells	Potential
Drach	22-13w	5	3,930
Gates	21-13w	4	1,404
Jordan	25-14w	4	6,218
Kipp	25-14w	1	1,342
Richardson	22 and 23, 11 and 12w	58	41,800
Sittner	21-12w	4	5,995
Snider	21-11w	4	739
St. John (McNaghten)	24-13w	14	22,386

The Ellsworth anticline, which parallels the Lerado anticline farther east in Reno County, is a part of the Central Kansas Uplift and has influenced much of the development in Stafford County. This is indicated by the trend from northeast to southwest, extending from the Richardson pool through the St. John pool to the Jordan-Kipp area.

The erstwhile Riley pool, now included in the Richardson area, is the farthest northwest producing area along the trend in Stafford County. It was opened in July, 1935, the discovery well being drilled on subsurface geology and a production trend from Richardson. Production of 41-gravity oil is from Arbuckle lime around 3,600 feet.

The Richardson pool was opened in September, 1930, the discovery well being located on core-drill and seismograph information, on a faulted anticline structure. The oil from Richardson wells tests as high as 46 gravity and comes from Arbuckle lime at around 3,550 to 3,600 feet. There are two producing horizons in Arbuckle lime in the Richardson pool, an unusual condition in Kansas. The field has been fairly well defined, although there is a possibility of additional extensions.

The next producing area to the southwest along the anticline is the St. John pool, opened in May, 1935, with a Lansing-Kansas City lime producer at 3,600 feet. It was located on subsurface geology. The discovery well was deepened in 1937 and uncovered production in Arbuckle lime around 4,057-4,100 feet.

The McNaghten pool, now included in the St. John area but still carried in Corporation Commission proration reports as McNaghten, was opened in May, 1937. Wells in this sector are producing from Arbuckle lime, possible pay in the Lansing-Kansas City zone not having been developed. The St. John-McNaghten district is yet to be defined. The present proven area, possible future extensions and eventual development of the Kansas City zone will sustain activity in the district for a considerable time.

The Kipp and Jordan pools, farthest southwest along the Ellsworth anticline, were opened in January, 1937. The Kipp pool has only one producer, and since completion of the discovery well two dry holes have been drilled, one being between the Kipp producer and the Jordan area to the north. A new test was started at Kipp last week. Production in the discovery well was from Kansas City lime at about 3,900 feet, the oil being 37 gravity. It was located by core drill and is on a dome.

The Jordan pool, about a mile northwest of Kipp, was located on core drill and seismograph information and also produces from Lansing-Kansas City lime, with two zones at 3,725-3,825 feet. Arbuckle lime found at 4,267 feet was dry. Dry holes were drilled to the north and southeast of the pool, which otherwise has not been defined. Early expiration dates of leases in this area may force drilling of several new tests soon.

The Sittner area, northwest of the Richardson pool, was opened by Torrey & Feaster in September, 1937, with a Lansing-Kansas City lime producer at 3,414 feet. Arbuckle lime production later was uncovered about one-half mile south of the discovery, and both the Kansas City and Arbuckle zones now are producing at Sittner. Several tests are under way in this pool, which yet is to be defined.

The Drach pool, about 4 miles southwest of Sittner, also was opened in 1937, Fred Rust completing the discovery well last November in Arbuckle lime at 3,705 feet. Some failures have been drilled in this area but it remains to be completely defined. The Sittner-Drach areas are among the busier sectors of the county.

A modern field camp in Richardson area

Snider-Gates Area

Older producing areas not considered on the Ellsworth anticline are the Snider and Gates pools. L. A. Ferris opened the Snider pool in April, 1936. It is in the northeast part of the county, near the Barton County line. Production is from Kansas City and Arbuckle formations, at about 3,100 and 3,325 feet, respectively. The pool has been defined in three directions, but as many leases in the area expire this year or next, considerable drilling may be expected.

The Gates pool, northwest of the Drach area, was opened by Atlantic Refining Co. in May, 1933. It was located on core drill and seismograph information, and is on an anticline. Production of 38-gravity oil is from Arbuckle lime at 3,700 feet. Failures offsetting production have been drilled on the east and west sides.

In March, 1934, Vickers Petroleum Co. opened the Neola pool in the southeastern part of the county with a Viola lime producer at 4,103 feet. It started off at 100 bbls. of oil an hour, but water soon intruded and predominated in this well and a second test drilled in the area. This resulted in abandonment of the pool after about six months.

An Early Survey

As early as 1906 a U. S. Geological Survey indicated Stafford County had oil possibilities. Despite the absence of surface geology, those early geologists deduced that a buried anticline was present, basing their reasoning on the appearance of exposed rocks to the north and diversion of the Arkansas River from its former course to the "Great Bend" of today.

Since then the county has been gone over carefully by geologists. The magnetometer appeared early in Stafford County, being widely used before and after leasing activity began. Core drilling was next, and then came the seismograph. As a result of this extensive exploration, numerous structures were discovered and intensive leasing resulted.

Stanolind Oil & Gas Co. is the largest holder of leases in Stafford County, and also has been the pace-setter in drilling. The company has approximately 118,500 acres under lease in the county, the greater part of the leases expiring this year. It has drilled on many leases and farmed out others, but it still has numerous tracts yet to be tested.

The second largest holder of acreage is Cities Service Oil Co., with around 40,300 acres, including nine sections in the Jordan area. This company also has acreage around St. John and in the northeast part of the county.

Gulf Oil Corp. and Shell Petroleum Corp. have from 25,000 to 30,000 acres each, scattered over the county. Shell has a block of six sections, not solid, in the Neola district.

The Atlantic, Skelly, Sinclair-Prairie, Magnolia and Ohio companies have from 16,000 to 20,000 acres each, in various sectors of the county. Atlantic has two blocks of four or five sections northwest of St. John which will not require early drilling as most of the leases do not expire until 1943.

The Barnsdall, Carter, Continental, Indian Territory and Texas companies have leases on from 10,000 to 12,000 acres each. Most of this is scattered over the county, although Indian Territory and Continental have some sizeable blocks. Skelly is interested in two blocks jointly with the Atlantic and Texas companies in the Kipp-Jordan area. Lario, Amerada and Stanolind have a 13-section block in the St. John area.

Companies holding small, scattered leases include Derby, Darby, Champlin, Phillips, Pure, Mid-Continent, California, Sunray, Tide Water, Eason and Argo. Only a few individual operators have holdings in the county, although several have taken farm-outs.

Stafford County today is about 95 per cent leased. The greater part of these leases expire this year, many of them in the first half of the year. That means the lease owners must drill or try to get renewals or extensions on their leases. That, then, is why Stafford County is getting the big play in Kansas right now.

Stanolind pump station in Richardson field

Trends in the Right Direction N.P.A. Members Are Told

By J. P. O'DONNELL

CLEVELAND, Ohio, Apr. 15.—Business is coming back into favor with the "man in the street," Dr. George Gallup, director of the American Institute of Public Opinion, told 250 representatives of the 50 member companies of the National Petroleum Association at the concluding session of the association's thirty-fifth semiannual meeting here today. Dr. Gallup's address was the highlight of the two-day meeting which heard a dozen prominent oil and other leaders, almost all of whom stressed better relations in trade as the greatest need of industry today.

In a talk which should be vastly encouraging to industry, Dr. Gallup said the institute found that "the plain people, the man in the street, the voter" is "going to the right instead of the left, business is coming back in favor and the country is for reducing taxes on business." He also said that the public is opposed to the renewal of the spending program because it found that "it didn't work in the last depression and won't work now."

After describing the mechanics of the institute, underwritten by 63 newspapers throughout the country, the speaker said that its purpose was to make a contribution both to journalism and to government. Previously we had to be content with a knowledge of how people acted while "now it is possible, with equal accuracy, to say what people think," he stated. That the American people are basically sound in thought has been demonstrated in the results of the approximately 500 polls which, he continued, have provided proof for Theodore Roosevelt's contention that the people as a whole could govern the country better than a small group. "In about 90 per cent of the cases, we have found public opinion to be sound. The views of the majority add up to make sense."

Dr. Gallup twice drew bursts of applause from his audience, the first time with the assertion, "You can bet every cent you have that President Roosevelt won't be elected in 1940," and again when he read the institute's estimate that "Republicans will gain 85 seats in the house in the next election." The president's popularity began to decline with the begining of the current depression last October, he pointed out, and expressed the belief that it will continue downward as the depression continues. He added, however, that Roosevelt's present popularity is only slightly lower than at the time he took office.

"A class consciousness which has developed characteristics of what we might call civil war, has developed in the oil industry in the past few years," W. T. Holliday, president, Standard Oil Co. of Ohio, told the convention. There is nothing disturbing about this rivalry "except that there has been developing . . . a quality of bitterness and recklessness which is inviting outside political intervention which may ultimately result in throwing the entire industry into the arms of the government, state or national, or both." Mr. Holliday's address is published on Page 21 in this issue.

Marketing Troubles

A paper prepared by Eric V. Weber, president of the Ohio Petroleum Marketers' Association and of the Eureka Oil Co., Cincinnati, and read by Hubert B. Fuller, the association's general counsel, laid part of the blame for marketers' troubles on their own inefficient leadership and accused the "refiners, on whom the jobbers must depend for their supplies, with dereliction of duty to their customers. As refiners and distributors your responsibilities far transcend the mere function of selling petroleum products . . ."

A program for correcting marketing evils was suggested by Mr. Weber: (1) Eliminate entirely the unsound practice of leasing equipment; (2) cease the practice of leasing dealer outlets on a gallonage basis and returning them to the lessor for operation; (3) consider seriously the growing use of tank-truck transportation to supply, at tankcar prices, customers and retail outlets not equipped to receive tankcar shipments; (4) begin, now, as an industry the formation of a public relations program that will acquaint every employe of every major oil company and every independent dealer and every consumer with the true story and the fundamental economics of the oil industry so that a saner and more wholesome type of thinking may prevail.

Mr. Weber also supported a sound program of crude oil production control. His paper read: "Many marketers have expressed themselves vigorously regarding production control . . . for the purpose of maintaining a reasonable ratio between crude oil production and gasoline consumption. . . . In my judgment those who oppose reasonable and orderly control of production fail to appreciate the destructive effect of great surpluses of crude oil and refined products. In their opposition . . . they maintain an entirely selfish interest and ignore the greater question of public benefit."

In the president's address, C. L. Suhr, chairman of the board of the Pennzoil Co., briefly sketched the background of the association which, he said, "devotes the greater part of its efforts to promote the welfare of the small companies. This association has in its membership every company which refines Pennsylvania crude oil. It has and can never lose the essential character which belongs to the Pennsylvania industry. . . . We have been in tough spots before and we are in a tough spot today. But we know how and when to cooperate and how and when to fight. . . . Out of it all has grown understanding and goodwill."

The advance of aviation, an important consumer of petroleum products, particularly its role in the mail service, was described by Capt. Jack Knight, director of public education for the United Air Lines, who told of the 90-horsepower motors of the reconditioned war planes with their top speed of 60 miles an hour which were used on the first air mail line from New York to Chicago.

After describing the safety of flying, during which he said that last year United Air Lines flew 26,000,000 passenger miles without mishap, he predicted that air lines will soon be able to fly schedules exceeding the accuracy of the railroads.

"Already a system has been developed and demonstrated for the automatic landing of airliners Ground direction-finding of planes in flight is in the process of development. Giant 30-ton, four-motored airliners capable of carrying 40 passengers will be test flown this year. These are things which are actually on the horizon. It is easy to see that the next two decades of transportation will more than match the progress made in the first 20 years. The 'art of flying' is now the 'science of flying'."

The manner in which the opposition of railroads and the mutual distrust of producers, refiners and pipe line operators delayed the early development of the pipe lines was described in an interesting manner by N. H. Weber, vice president Pure Oil Co.

World politics and economics were discussed fully by Henry M. Busch, professor of sociology, Cleveland College, who viewed Mexico's expropriation of foreign oil interests as a "part of a world-wide demand expressed by the people of China, Spain, and the Philippines and other areas rich in raw materials and heretofore exploited chiefly by foreign investors. . . . It is not within my power to suggest how foreign investors should deal with the governments who have sovereignty over their economic operations, but I am of the opinion that the long-time trend will witness a decreased power of the foreign investor and that he will eventually have to adjust himself to living under the laws and regulations set forth for him by the government in whose country he operates." He expressed the belief that Mexico will soon find a market for its oil among the fascist governments.

A propane treatment of lubricating oil stocks which differs from others in two essential respects: Continuous chilling as opposed to batch chilling and simultaneous deasphalting, deresining and dewaxing are accomplished was described at the technical group meeting in a paper prepared by M. B. Cooke and Earl Petty of Alco Products Co. and Paul Barton of Sun Oil Co.

Other group meetings were devoted to tax and transportation discussions. J. W. Barriger, III, chief examiner, railroad division, Reconstruction Finance Corp., led a discussion on railroad consolidation at the traffic and transportation meeting. Corporation income, social security and pipe line transportation taxes were discussed at the department of taxation meeting. Thomas E. Shearer, Prentice Hall, Inc., said that the 1938 revenue act is not relief for the taxpayer in his discussion of the corporation tax; Maxwell E. McDowell, head, and George S. Koch, of the tax department of the Standard Oil Co. of New Jersey, deplored lack of definitive information available for properly computing social security taxes, and George Koegler, of Kellogg, Emery & Inness-Brown, said that apparently the treasury department regards any transportation of oil or its products in a pipe or hose, including plant movement and loading or unloading, as pipe line transportation and therefore subject to the tax.

The meeting, advanced a day to avoid conflict with Good Friday, ended with the annual fellowship dinner at which the Canfield Oil Co., represented by H. M. Carruth and A. L. Bailey; the National Refining Co., represented by C. S. Smith and H. W. Kuegler, and the Standard Oil Co. of Ohio, represented by A. M. Maxwell and M. R. Bower, were hosts.

American Chemical Society

(Continued from Page 27)

in physical properties of the fuels. Sulfur dioxide was more selective than furfural. The raffinates showed an improved response to a diesel dope, acetone peroxide, over that of the original fuel. Addition of a pourpoint depressant to the raffinates caused the same lowering of pourpoints as addition to the untreated fuels. Thus it was possible to prepare high ignition quality fuels from cracked stocks by solvent extraction, either alone, or in conjunction with diesel dopes, a pourpoint depressant or both. Solvent extraction of straight-run fuels from the same four fields yielded raffinates with improved properties but the increase in ignition quality was not as great as for the cracked fuels.

"The extracted portions of the fuels had low aniline points and high blending values, thus indicating they were essentially aromatic in character. They probably could be used as blending stocks for tractor fuels, cracking stocks for high antiknock gasoline or as solvents.

"Extractions with furfural at lower temperatures indicate that these two solvents are only very slightly more effective at lower temperatures than at room temperature.

"Acid treatment of both cracked and straight-run fuels caused only a negligible increase in the diesel index. Hydrogenation caused a large increase in ignition quality without loss of fuel or change in such properties as pourpoint or distillation range. However, fuels with a high sulfur content could not be successfully hydrogenated even though poisoned catalyst was removed and fresh catalyst added several times."

Doctor Sweetening

More intricate but probably equally vital research work for future practical application on a large scale was reported by V. N. Ipatieff, Herman Pines, V. I. Komarewsky, and N. Balai of the Universal Oil Products Co. Their subjects included "Destructive Hydrogenation of Alkylated Monoclinic Aromatic Hydrocarbons," and "The Dehydropolymerization of Ethylene." C. L. Lowry, Jr., C. G. Dryer, Charles Wirth III, and R. E. Sutherland of the same company offered a more readily applicable series of results on doctor sweetening of gasoline that proved highly interesting. In this respect the authors said, "Improper doctor sweetening, particularly the use of excess sulfur, has been found to influence adversely the effectiveness of oxidation of inhibitors in sweetened gasoline. By sweetening at a temperature of about 85 degrees properly mixing gasoline, doctor solution, and sulfur, and allowing adequate settling time, doctor sweetening can be carried out with a minimum amount of sulfur and produce a gasoline in which the inhibitors will be consistently effective. The harmful effect of excess sulfur is apparently due to the formation of polysulfides, particularly those higher than trisulfides, which remain in the gasoline. Equations are presented to account for the formation of these polysulfides."

Other features of the meeting were a paper by Maryan C. Matuszak of the Phillips Petroleum Co. on "Sulfuric Acid Analysis of Gaseous Olefins" and L. C. Chamberlain, Jr., and R. F. Boyer of the Dow Chemical Co. on the "Physico-Chemical Properties of Acidizing Solutions and Their Effect on Well Treatment."

While the latter paper dealt with problems which occur in the oil producing fields rather than in the refinery, the refinery chemist is being called upon to broaden his work to these fields especially in view of the possibility of serious refinery equipment corrosion resulting through the improper acidizing of wells and the improper handling or neutralization of the oil and water that may be run to the refinery following acidizing.

CONVENTION COMMITTEE NATIONAL OIL SCOUTS ASSOCIATION

The convention committee of the National Oil Scouts Association met in Tulsa with national officers April 16 to discuss plans for the annual convention to be held in Tulsa May 12, 13 and 14. The tentative program was approved, arrangements were made for the annual dinner dance to be held the night of May 14 in the Crystal Ballroom, Mayo Hotel, and other business matters incident to the convention were discussed. It was announced hotel accommodations have been reserved for all the scouts expected to attend.

W. S. Arthurs, chief scout, Skelly Oil Co., and convention chairman, is at the head of the table. Others in the picture are: H. T. Carpenter, Ohio Oil Co.; Lee A. Adams, Sinclair Prairie Oil Co., Oklahoma City, chairman of the national executive committee; Robert Curran, Carter Oil Co.; Henry Langspecht, independent operator; Howard Boyd, Magnolia Petroleum Co., Dallas, Tex., national president; Mr. Arthurs; R. C. Steinman, chief scout, Sinclair Prairie Oil Co.; T. H. Shaw, Sinclair Prairie Oil Co.; Paul Lyons, Stanolind Crude Oil Purchasing Co.; Maurice Miesse, Phillips Petroleum Co., Shawnee, Okla. Members of the committee and chief scouts not present when picture was taken include Clyde Bebee, Shell Petroleum Corp.; Sam Baird, Mid-Continent Petroleum Corp.; Howard Johnson, Texas Co.; George Schwab, land department, Barnsdall Oil Co., and Pete Smith, Pure Oil Co.

Ezzell Pool Throws Light on the Jackson Trend

By F. L. SINGLETON

Well is being swabbed with portable swabbing and coring machine

With an estimated ultimate recovery of 20,000,000 bbls., the Ezzell field, opened last June in McMullen County, has proven to be the most important shallow discovery in the Southwest Texas district in years. It has thrown additional light on potentialities of the Jackson trend, resulting in an intensive wildcatting campaign.

The field is about 76 miles south of San Antonio and about 15 miles southwest of the town of Three Rivers in the east central part of the county. Production has been extended into the adjoining county of Live Oak, and for about 5 miles in a northeast-southwest trend. The extension is approximately 1 mile wide. Seventy-four wells completed have proven 1,500 acres, of which 750 acres have been drilled.

Outpost wells drilled along this trend indicate the field will be extended to a total length of 10 miles. Six dry holes have been drilled on the McMullen County side of the field and two on the Live Oak County side. These dry holes have not actually defined production, but have outlined more clearly the probable trend of production.

Approximately 95 per cent of the present production is confined to McMullen County, on the Ezzell ranch, of approximately 33,000 acres. Checkerboarded leases with the Ezzell interest were acquired on the ranch by Edwin M. Jones, independent producer of San Antonio, who contracted to drill six tests to the Pettus sand.

The ranch was divided into six separate blocks and to date in addition to the Ezzell field, two other distinct structures have been found. Edwin M. Jones No. 1 Ezzell, several miles north of the present production in section 3, Thomas Adams Survey, tested an estimated 20,000,000 feet of gas when brought under control after a threatened blowout from the Government Wells sand at 1,831-2,105 feet. This well was killed and abandoned in December, 1936. The second well, No. 2 Ezzell, section 13, logged favorable showings in the Government Wells, Upper Loma Novia and Pettus sands, but was abandoned in 1937. The third test, which has encouraged deeper drilling on the ranch and played an important part in the development of the field, was No. 3 Ezzell, section 3, about 3 miles north of the present production. This test was drilled to a total depth of 5,180 feet and logged favorable showings in the Mount Selan formation at approximately 4,900 feet. It was plugged back and completed in March, 1937, for a large gas well in the Upper Loma Novia sand at 1,400 feet.

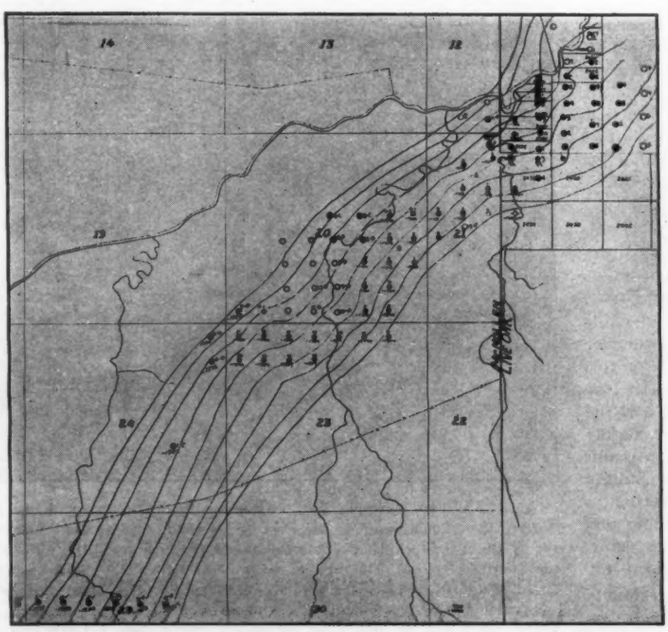
The discovery well of the Ezzell field was No. 4 Ezzell, in section 20. Drilled to a total depth of 1,545 feet, it was plugged back and completed through perforated casing at 1,423-33 feet for an initial production of 500 bbls. of 20.7-gravity oil per day. This sand is now referred to as the Ezzell sand, but is tentatively identified as the Lower Loma Novia sand, described as a typical section in the Jackson series.

The surface formation to the top of the Jackson at 600 feet is referred to as Gueydan, composed of volcanic ash, sand, and mud. The top of the producing sand is found at 1,450-1,500 feet and has an average thickness of 8 to 10 feet, although a maximum of 16 feet has been cored in several wells. A gas-cap only a few feet thick is encountered along the high part of the structure, but the section gives little trouble while the sand section is being cored. The water level has been determined at minus 1,445 feet.

Discovery of this structure resulted from months of extensive study by E. C. Rach, geologist for Edwin M. Jones, who has directed the staking of all locations on the ranch. Every acre was plane-tabled and Mr. Rach was assisted by aerial maps.

While present production is confined to a strip 1 mile wide, it is expected production eventually will be found to overlie a broader area on the extreme north and south parts of the structure. The accompanying contour map shows the structure already has become enlarged at the north end in Live Oak County, and several outpost tests are attempting to widen the proven area. On the southern part of the structure, 3½ miles from production, Edwin M. Jones No. 5 Ezzell was abandoned recently after coring 27 feet of solid sand which carried showings of oil and gas in the discovery horizon. It is believed the thick-sand section, together with the showing of oil, indicates this test was located on the southeast edge of the trend and that by drilling a few hundred feet northwest, production will be developed and the producing area enlarged. This pattern is characteristic of the most important shallow fields along the Jackson trend.

The field is controlled 100 per cent by independent operators. While all production on the McMullen County side is controlled by Edwin M. Jones and Harry Ezzell, the leases in Live Oak County are operated by Bleak Hill Oil Co., Lonnie and Mike Glasscock, Huisache Production Co., Parr & Delaney, L. W. Powell and Sure Oil Co. An old subdivision adjoining McMullen County has resulted in this area being drilled on a rather small spacing basis which has been responsible for an active drilling campaign. Production has been extended to the Nueces River and much drilling is foreshadowed along the river bed. At present five rigs are operating in this area.



A contour map of Ezzell field, McMullen and Live Oak counties, showing present development along this shallow Jackson shoreline trend

While Edwin M. Jones and Harry Ezzell own their individual leases, their holdings are being developed as a single unit with actual operations in charge of Mr. Jones, permitting this section of the field to be developed in a systematic and orderly manner.

Before the discovery of oil this was a rugged country densely covered with mesquite trees and sage brush. With the use of heavy-duty tractor, equipped with a large steel blade, the area has been cleared off and it now has the appearance of any normal field. Roads have been built to each lease, and as the field is extended, the construction of roads is kept well in advance of development.

Owing to the low daily allowable of 29 bbls. per well and the lack of offset

drilling obligations, only two rigs are required in the present development. These rigs are steam-powered capable of drilling to 6,000 feet. As production is shallow, the rigs are set up on rather light wooden substructures, about 3 feet high. The derricks, 96 feet high, are of steel.

A program of one well to 10 acres has been followed. In order that there may be no interference with the movement of the derrick and other

Set-up of individual pumping unit on No. 7-E Ezzell, shown cleaning out after being swabbed in

equipment, several locations are made and cleared well ahead of actual drilling. Clearing off the locations and digging of slush pits and boiler pits is done with the large tractor.

The locations are so arranged that it is possible to use the same boiler location for four wells. Two 125-horsepower boilers are moved in and set up in the middle of 40 acres. This eliminates the movement of equipment to each location. By extending the steam lines, as many as seven locations have been drilled from one location. Water for boiler use is pumped from the Nueces River.

The casing program consists of 60 feet of 10-inch casing cemented with 50 sacks, and the production string is 7-inch 17-pound casing, usually cemented on bottom with 150 sacks. The production string is allowed to set a maximum of 24 hours before the plug is drilled. After drilling out from the surface casing the well is ready for completion within 18 hours. As the sand is cored to the desired depth the well is swabbed a few times to enlarge the cavity in the sand section, and the rig and derrick are moved to the next location.

Final completion of the well is made with a portable pulling machine, equipped with a 51-foot steel derrick, mounted on a large heavy-duty truck. This machine is sent to the location immediately after the rig and derrick are moved from the well site. The casing then is run and while waiting for cement to set, concrete foundation for the individual pumping unit is poured. After this cement has set the required number of hours, the casing is perforated with 20 to 40 shots, and the well is swabbed in. When the well has thoroughly cleaned itself, it is hooked up to the pumping unit and placed on production. The portable pulling machine, said to be the only one operating in South Texas, is used also for pulling tubing and sucker-rods in wells that have sanded up. However, only a few wells have had to be cleaned out.

The cost of a completed well is approximately $7,500. All wells in the field are equipped with individual pumping units powered by a light gas engine. While some of the wells will flow with a little agitation, it is a common practice to place each well on the pump at the time of completion. The initial production of all wells, ranges from 65 to 1,000 bbls. per day.

Fuel for drilling purposes, and for all individual gas engines stationed at each pumping unit, tank battery, and at the main pipe line station, is supplied by the operators' large gas well north of the field. The gas system, consisting of 10 miles of 3-inch welded pipe, extends to all parts of the field.

All crude is purchased by the Alamo Pipe Line Co., owned jointly by Edwin M. Jones, Harry Ezzell and others. This system consists of a 3-inch welded gathering line and a 12½-mile 4½-inch welded main line, extending to a 10-car loading rack at Ike on the Missouri Pacific Railroad. The oil is shipped to Corpus Christi, where most of it is transported by boats to foreign destinations.

CRUDE OIL ANALYSIS

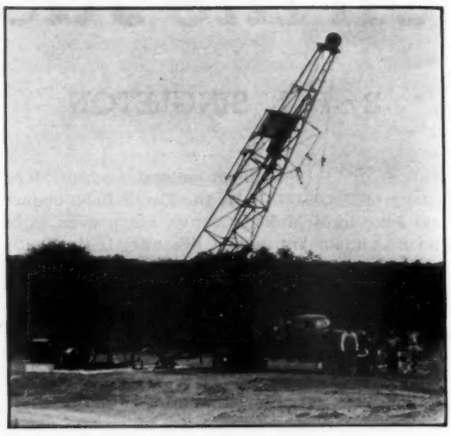
Sample marked: "Ezzell crude oil, McMullen County"

Tests on crude—	
A.P.I. gravity	20.7
Flash (C.O.C.), deg. F.	235
Fire (C.O.C.), deg. F.	260
Viscosity (Saybolt at 100°F.), seconds	137
Pour, deg. F.	—0
B.s.&w., per cent	.1
Color	dark olive green
Odor	sweet
Tar, per cent	10
Conradson carbon, per cent	.74
Sulfur, per cent	.27

Distillation—	°F.
Initial boiling point	438
5 per cent over at	470
10 per cent over at	485
20 per cent over at	528
30 per cent over at	564
40 per cent over at	606
50 per cent over at	650
60 per cent over at	695
	(cracked)

Two 10,000-bbl. storage tanks and one main pump station, composed of a 125-horsepower gas engine and a 4½ by 10 pump, capable of moving 5,000 bbls. per day, have been erected in the field. The oil is pumped from these tanks to two additional tanks of the same capacity at Ike. An interesting feature of the loading rack is that owing to the difference between the elevation of the storage tanks and that of the loading rack, tankcars are filled by gravity flow.

All tank batteries, consisting of three 500-bbl. bbls. tanks and one gun-barrel tank of 750 bbls. capacity, are equipped with two 2-inch test lines and test headers, designed so that any one well can be tested without closing in the other wells.



Setting up portable pulling machine over well, preparatory to pulling tubing and rods

This arrangement was made in view of the fact that test runs on each well are made once a month to see if all pumping units are operating properly.

With approximately 100 locations remaining to be drilled within the proven area, together with eventual development of the two other structures referred to, exploration on the Ezzell ranch alone is expected to yield more information concerning possibilities of the Jackson trend.

Drilling 25,000th Well in East Texas Field

M. W. McVey, extreme left, was given credit for drilling the 25,000th well in the East Texas field, April 14, by the Texas Railroad Commission engineering department at Kilgore. The well is McVey No. 3 Roy H. Laird, Kilgore townsite, Lot 5. Mr. McVey, an independent operator, opened an area east of Kilgore two years ago when he drilled an extension well a mile ahead of production.

Those standing are M. W. McVey, Harry Conroe, superintendent of Halliburton Oil Well Cementing Co. in East Texas; T. C. Hendricks, Republic Supply Co., who furnished material for the well; J. L. Peters, helper; Jake Kemp, Halliburton Oil Well Cementing Co.; Sam Day, fireman; Bowden Farrar, railroad commission; R. A. Harris, trucker; Ray Hill, driller. To the right of the oil saver are C. E. Hardy, driller; Joe Alexander, derrick man; W. M. Fallin, fireman; C. C. Tate, J. A. Gillis and E. Crossland, helpers.

Kneeling are G. E. and C. M. McElhinney, superintendents of production for McVey, on the left, and W. J. Todd, Bill Dykes and Earl Phillips, cable tool crew, on the right.

POSSIBILITIES IN THE NEBRASKA PANHANDLE

By Harold J. Cook
Consulting Geologist

Western Nebraska has been little known or understood by most oil men as important potential producing territory. Little has been published that is of value concerning the possibilities of oil or gas production in the regions covered by Tertiary formations in the western end of the state and adjoining territory. This blanket of Tertiary beds, of a series little understood by most geologists, has been generally passed by in favor of better known territory in the search for oil.

This area has undergone intensive academic researches during the past 35 years by many research geologists and paleontologists, who have uncovered a wealth of technical information, of which, unfortunately, little has become generally known or readily available to others. This work was largely done with no commercial thought in mind, but purely as a matter of scientific research along interesting lines.

Reports by Cook[1] and Schramm[2] dealing with certain structure in Sioux County, the northwest corner county of Nebraska, merely presented an introduction to some possibilities in this territory during this period.

The "Nebraska Panhandle" region really belongs more to the eastern Wyoming territory than to the rest of Nebraska. It is typically high terrain, with elevations averaging between 4,000 and 5,000 feet for the most part. It is cut by east-west stream drainage to a maximum depth of 1,000 feet or more, producing pronounced valleys between high table lands, bordered by rugged hills and marked escarpments.

The Nebraska Panhandle area is an ancient geologic basin, bounded at its apex on the north by the Black Hills; to the westward by the Hartville Uplift block, and on the east by a buried ancient highland area extending southeastward from the Black Hills through the Cambridge arch into Kansas.

Between these two old blocks, which diverge southward from the Black Hills, the Nebraska Panhandle Basin opens southward into Kansas and northeastern Colorado.

Coincident with the later movements which elevated the Black Hills, and other mountain areas to the west and northwest, this whole region was elevated, and stresses were set up which produced local warping and faulting, not only in the Tertiary, but in the deeper, older formations below.

Evidence exists which indicates that the folding and faulting present in the surface Tertiary beds are generally indications of older and yet greater earlier movements along these same general planes of weakness and fracture in the older beds below. With a proper understanding of the detailed stratigraphy of the Tertiary, and of the relations between the movements evidenced in these surface beds and the general geology and structure of the older rocks of this territory, it is possible to tell a great deal about the structure of the deeper oil-producing beds that underlie this great area.

The too shallow test hole of the Associated Oil Co. of California, on the Agate anticline in 1920, proved the geology of a splendid section and demonstrated the presence of abundant source materials for the production of oil and gas in the Upper Cretaceous beds in this region, to as great a depth as the drill penetrated, 4,567 feet.

As yet deeper drilling was necessary to reach the first of a series of "sands" which should produce in good structure in this territory, and as that company did not care to do deeper drilling at that time, the test was abandoned. In the meantime, no attempts have been made to get proper drilling in this territory until recently, when the big production in the deeper beds in the nearby Lance Creek field, Wyoming, called attention of big interests to this territory, and intensive investigations and leasing have been undertaken over a wide adjoining area.

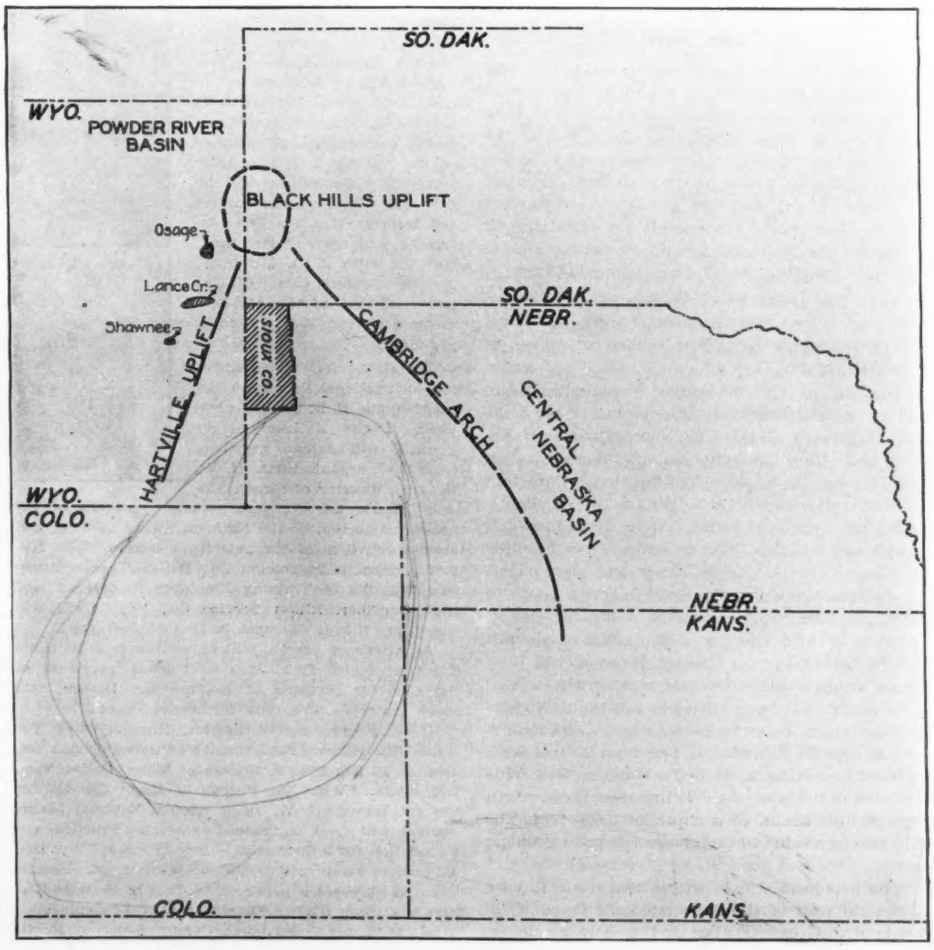
As the regional dips in this Nebraska Panhandle territory are from the northwest to the southeast, this gives an enormous area for the production and collection of oil and gas, extending more than 100 miles long, from which these hydrocarbons can migrate into natural traps or structures in the northern part of this great basin.

It is of marked interest and import to note that big structural movements occurred in this northern basin area, situated in a nearly ideal manner to trap and hold commercial quantities of oil and gas, so far as can be told by the best geologic evidences known to date.

South of the Pine Ridge escarpment, from a short distance north of Harrison, Neb., the Nebraska Panhandle Basin is blanketed by an average of about 1,000 to 1,200 feet of Tertiary beds; and in some places by dune sands of Pleistocene to Present age; and locally, by gravel, sand and clay channel and terrace deposits of various ages, Pliocene to Present, depending on locality.

The Tertiary here begins with the base of the Oligocene (White River) deposits, which immediately overlie the Cretaceous Pierre shales. On these lie, successively, a series of basal Miocene, Lower Miocene, late Lower Miocene, Middle Miocene and Upper Miocene; Lower, Middle and Upper Pliocene—and, in places, a Pleistocene sequence—all

General map of region around Sioux County, Nebraska



[1]Cook, Harold J. "Notes on the Geology of Sioux County, Nebraska, and Vicinity." Neb. Geol. Sur., Vol. 7, Pt. 11; Jan. 20, 1915.
[2]Schramm, E. F., and Cook, Harold J. "The Agate Anticline, Sioux County, Nebraska." Kanoka Petroleum Co., Bulletin A; July 1921.

of which, when properly recognized and understood, carry important evidences bearing on the stratigraphy, ages and structures represented. Marked periods of disturbance are dated in these beds, which are correlated with the great mountain building movements most pronounced to the west and north—but which also produced and left important structural deformations, particularly of Miocene age, in this territory.

I will not attempt to go into the detail here, which it would require to discuss these beds, their faunae, sediments, structure and relationships. This material is now prepared for immediate publication in a long technical report elsewhere. However, the years of intensive study put in on these beds have made it possible to get much more information out of them than has been generally believed probable of importance in determining the presence and position of structures in the older, underlying beds suitable for oil production here.

The Cretaceous and older section under this Tertiary, in the Nebraska Panhandle Basin is closely comparable to that being drilled in the nearby Lance Creek field, Wyoming.

In the western edge of this basin, extending across the Goshen Hole in Wyoming, and a short distance into Nebraska, there is an irregular blanket of late Cretaceous (Fox Hills and Lance formations) thinning out and rapidly disappearing eastward, near the Nebraska line. This is entirely absent in the northern part of this basin, and over most of its extent.

In part of the Goshen Hole area and extending locally into Nebraska, is an interesting intervening bed immediately underlying the Chadron (Lower Oligocene) formation, and over the Lance, named the Yoder formation, of basal Oligocene, or uppermost Eocene age. This bed is of but limited local occurrence, so need not be considered in most parts of this basin.

Older Beds

As the older beds from Pierre down to the local equivalent of the Madison lime, including the producing members they contain, were laid down here under similar or identical conditions, and at the same time as the contemporaneous deposits in the adjoining basins which produce oil from Montana to Texas—given suitable structural traps and drainage here, there is certainly no sound reason to assume the Nebraska Boundary Survey should have eliminated oil possibilities from this area.

Very few holes, properly located as to structure, and where basic conditions were favorable, and deep enough, have been drilled anywhere in Nebraska, to date.

Outside of the Nebraska Panhandle Basin (which is really the northern section of the Colorado Julesburg Basin), in Nebraska, the conditions are either generally so unfavorable, or so little known, as to make drilling most uncertain in most instances where wells have been drilled.

Within this basin but few holes have been put down; and practically no holes have been drilled to date where structural conditions were right, where drainage was sufficient—and to a depth to reach probable producing beds. A notable case is the Prairie Oil & Gas Co. well, drilled to a depth of 5,697 feet in Banner County, Nebraska, in 1919. There is no sound structural reason why a well should ever have been drilled at this point. No production was to be expected in a test so located. A similar case in point is the Foreman-Detroit well, on Rawhide Creek, north of Torrington, Wyo. This is drilled in the base of a syncline near the western edge of this basin, to a depth of 3,580 feet. The only thing of value in such holes is a good geologic section.

The best-located hole within this basin to date is the old well of the Associated Oil Co. of California, drilled in 1920; but as this hole was abandoned at 4,567 feet, in lower Graneros, it had not yet reached any of the members which might be expected to produce in this territory. The new test of the Union Oil Co. of California, due to be drilled this spring, is located about half a mile from the old Associated well, and is due to go down with modern tools to make a proper test of the big Agate anticline which that company now has under lease.

It is in this vicinity that other big blocks on structure are now under lease by a number of large operators, such as California Co., Felmont Corp., of Houston, Tex., Texas Co., Amerada Corp. and others. There is much activity in this region at this time, with geologic crews of various oompanies at work and scouts and land and lease men in abundance. Some of the above, and other big organizations, have had seismograph crews at work for long periods in this region, with most interesting and instructive results. It is apparent that, with a proper understanding of these Tertiary beds, much can be told of the probable structure of underlying beds, and some of this seismographing has given most illuminating results in that direction.

It would be premature at this time and not fair to operators now on the ground for the writer to go into detail on these structures now under lease to various companies, where the geology and structure were worked out by the writer over a long term of years, in conjunction with many research studies previously mentioned.

The important thing to note at this time is that important structures do exist in this Nebraska Panhandle Basin, with hundreds of feet of closure, with an enormous collection and drainage area well over a hundred miles long to feed them; and that with abundant hydrocarbons known to occur in the deeper beds here, as source materials, every essential primary condition necessary for important commercial production of oil and gas that can be told in advance of drilling, is present here. This region has now been actively entered by a number of strong producing companies, with the assurance of a lot of early action to test the region, something never before done in Nebraska.

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Exposition Construction Program Is Rapidly Approaching Completion

The construction program of the International Petroleum Exposition is nearly completed, as these views indicate. Top, the enlarged Oklahoma Building, with its new, modernistic front. Bottom, the new cafe building, with replica of the Drake well and exposition headquarters for pioneers of the industry at the right.

The tenth International Petroleum Exposition Safety Day contest will be featured by directors of safety and members of first-aid teams from oil and supply companies in all sections of the country attending. The Safety Day Conference will be held May 19, and the contest and banquet May 20. The conference will open at 9:30 a.m., May 19, with J. D. McCamey, director of safety, Carter Oil Co., and chairman of the Mid-Continent Petroleum Safety Council, presiding.

W. G. Skelly, president of the International Petroleum Exposition, and D. D. Fennell, president of the National Safety Council, will extend greetings from their organizations. H. W. Boggess, director of safety, Sinclair Prairie Oil Co., and general chairman of the petroleum section of the National Safety Council, will discuss activities of the petroleum section. J. L. Risinger, Magnolia Petroleum Co., Dallas, Tex., will discuss "Results of Training Employes in Safety," and Glen Gardiner, Elliott Service Co., New York, will speak on "Human Element in Modern Industry."

An afternoon session will follow luncheon at Hotel Tulsa, at which Dr. James S. Thomas, president of the Chrysler Institute of Engineering, Detroit, will speak on "New Frontiers for Smart People."

R. B. Roaper, safety director, Humble Oil & Refining Co., Houston, will preside at the afternoon session. G. M. Kintz, U. S. Bureau of Mines, Dallas, Tex., will discuss "What the Bureau of Mines Can Do for the Oil Industry." W. Dean Keefer, National Safety Council, will speak on "Solid Engineering Practices as a Foundation for a Successful Safety Program," and Don M. Conley, safety director, Cabot Carbon Co., Pampa, Tex., will present a paper on "Safety in the Manufacture of Carbon Black." The program will be concluded by J. M. Gentry, Oklahoma Commissioner of Public Safety, on "What a Highway Patrol Can Do to Promote Safety in Transportation in the Industry."

The safety and first-aid contest, to be held at the exposition grounds, will begin at 10 a.m., May 20.

Twenty-two safety teams already have been entered and several more are expected. Only 22 teams were entered in the 1936 exposition, this year's entries including teams that formerly participated and several that have never engaged in an exposition safety contest.

The contest will be held under ground rules prepared by the exposition committee and the Bureau of Mines. G. M. Kentz, senior safety instructor, Magnolia Petroleum Co., will be chief judge, assisted by 18 judges being trained under supervision of a Bureau of Mines first-aid instructor. Companies that will enter teams are having elimination contests to select their representatives, assuring an assemblage of the more expert safety workers in the oil industry.

The safety program will be concluded with a dinner at the Tulsa Building. Gold, silver and bronze medals will be presented winning teams and the Bullarge artificial respiration trophy will be awarded. Presentation of medals will be followed by music and a floor show.

Revised Attitude of Administration Analyzed

WASHINGTON, D. C., Apr. 18.—Events of the past week clearly indicate the administration is entering a new phase of its relations with business, characterized, first, by renewed attempts to increase purchasing power through heavy lending and spending, and, second, by an attempt to inspire confidence in private enterprise by refraining from drastic reforms and actions which might upset the economic system.

The announcement of this new spending program met much criticism in both congress and throughout the country, but nevertheless congress is expected to approve it in major outlines. There is much opposition in congress to increasing the national debt, but most members of congress feel there is no alternative at present. An attempt will be made, however, to place restrictions around the spending of the money and instead of granting the President virtually a blank check, congress will write into the appropriation law more definite specifications regarding the ways in which the money will be spent and the type of project to be financed than it has done on any other of the New Deal spending measures. The resumption of government financing of building projects and an increase in relief outlays undoubtedly will have a favorable effect on many lines of business, but many economists are doubtful it will be of permanent value or will even provide sufficient stimulus to start business activity upward toward a lasting recovery.

Attitude Toward Business

In addition to these moves to give business a financial "shot in the arm," President Roosevelt, both in his message to congress and in his radio talk to the nation, appealed to all groups to cooperate for recovery and assumed a conciliatory attitude toward business in an attempt to quiet fears and restore confidence. He called for self restraint and a common effort, and deplored immoderate statements, appeals to prejudice, the creation of unkindness, and talk of dictatorship.

Observers were quick to interpret this as an indication that President Roosevelt has acceded to the urgings of conservative members of congress and other advisers that he refrain from further attacks on business men and further reform measures unsettling to business confidence. While this was undoubtedly the president's intention, other events of the week cast doubt upon the degree to which the President has been converted to this view.

For example, he sent a letter to the house and senate tax conferees urging retention of the principle of the tax on undistributed corporation profits as contained in the house bill but which was overwhelmingly opposed in the senate. By so doing he created a deadlock in the tax conference which promises to prevent action for a long time and which continues the uncertainty of business over the type of taxation which will be imposed upon it.

New Messages

The President also announced his intention of sending two new messages to congress soon, one proposing to tax the salaries of all state officials and the income from state and municipal securities, with reciprocal privileges granted to the states, and the other message dealing with prices and monopolistic practices. The tax proposals should have no direct effect on business beyond banks, insurance companies, and others which are heavy investors, but the method which the President apparently intends to use is disturbing. Instead of seeking a constitutional amendment, the President has indicated he will propose that the federal government tax state officials and state securities through a simple act of congress based on the sixteenth or income tax amendment to the constitution. For such a law to be held constitutional would require reversal of several Supreme Court decisions, and this suggests that the President is still banking on a liberal majority in the Supreme Court to uphold New Deal laws, a practice and a precedent which would be unsettling to business, to say the least.

Just what President Roosevelt will recommend in his monopoly message is a matter of conjecture, but it is generally supposed that instead of asking for immediate legislation he will propose the creation of a commission or a congressional committee to study the problem.

A new attempt to enact legislation fixing maximum hours and minimum wages is being made in the house at the insistence of President Roosevelt. The house labor committee has made compromises and amendments in an attempt to remove much of the opposition to its earlier bill which was recommitted by the house, and has succeeded to a considerable extent, but there still remains a sizeable body of opposition to any legislation of this nature, and there is much doubt that the bill can be passed at this session.

The bill agreed on by the house labor committee provides for the establishment of wages and hours by the Secretary of Labor and their enforcement by the Department of Justice, thus involving no new administrative agencies. Minimum wages would start at 25 cents an hour for a given industry and could be increased at the rate of 5 cents per hour annually until reaching 40 cents. The work week could start at a maximum of 44 hours and be reduced by two hours each year until reaching 40 hours. While such a law would not prove oppressive to most industries, its constitutionality is doubtful and its effect would be disturbing.

Gas Measurements

The Bureau of Standards has issued a revision of its gas calorimeter tables as Circular C 417, replacing Bureau Circular 65 of the same title which has been in use since 1917. When the earlier circular was prepared, nearly all fuel gases which were bought and sold could be classified into two groups, manufactured and natural gases, each with a fairly narrow range of properties, and the heating values of natural gases were only infrequently measured.

For these reasons, it is explained, the earlier publication was prepared primarily for convenient use with gas of only a limited range of compositions. This revised circular gives equal consideration to gaseous fuels of all the varied types now used, and should contribute materially to the convenience and accuracy in calorimetric work. The circular contains condensed directions for operating a flow calorimeter for gases, with forms and directions for recording and computing results, tables of "reduction factors" for gas volumes, and tables of the corrections needed in calorimetric work.

Pipe Line Activity

Ready to lower in ditch

Texas Canadian May Lay Line From Cotton Valley

Texas Canadian Oil Co. has begun preliminary investigation toward the feasibility of construction of an 8-inch gas line from the Cotton Valley field of Webster Parish, to El Dorado, Ark., by way of Shuler.

The estimated cost is $700,000, it is reported, with its success dependent upon development of a substantial market in the El Dorado area.

The engineering firm of Ford, Bacon & Davis, of New York, is making the survey.

Central Gas Utilities Co. Extending Its Gas Lines

The Central Gas Utilities Co. of Syracuse, western Kansas, is extending its gas lines 2,500 feet to the D. A. Milsap farm, south of Syracuse in Hamilton County, so the fuel can be used for irrigating 22 acres of land. Several other farmers near Syracuse are planning to adopt gas to their pumping plants as power. The gas company is also planning to run gas lines from Holly to Coolidge.

Louisiana Tax Commission Reduces Pipe Line Levies

BATON ROUGE, La.—The Louisiana Tax Commission has ordered parish assessors to reduce assessments on oil and gas pipe lines approximately 8 per cent. Rates on 4-inch pipe were reduced from $2,500 to $2,300 per mile, on 6-inch from $4,000 to $3,600, on 8-inch from $6,000 to $5,500, on 10-inch from $8,500 to $7,800, on 12-inch from $10,000 to $9,200, on 14-inch from $12,000 to $11,000, on 16-inch from $14,000 to $12,800, on 18-inch from $16,000 to $14,700, on 20-inch from $18,000 to $16,500, and on 22-inch from $22,000 to $18,400.

Arkansas Tax on Pipe Lines Is Appealed to Courts

LITTLE ROCK, Ark.—Standard Oil Co. of Louisiana obtained an order in circuit court at Little Rock temporarily restraining county clerks, tax collectors and other officials in eight South Arkansas counties from collecting taxes against the pipe line properties of the company on the basis of the state corporation commission's 1937 assessments.

The company's suit, an appeal from the commission assessments, alleged that the $1,954,000 assessment was excessive by $456,930 and that it was arrived at on a basis of more than 50 per cent of the market or actual value of the pipe lines.

The temporary order restrained collections in Ashley, Chicot, Columbia, Little River, Miller, Ouachita, Sevier and Union counties.

Humble Co. Lays Line to Its Submerged Oil Test

A crew employed by Humble Oil & Refining Co. is laying a 4,500-foot line of 8-inch pipe from Mesquite Point in west Chambers County to the Humble's first test in the Cedar Point submerged oil prospect.

Humble No. 1 State, in the submerged area, is an offset to the Salt Dome-Standard Oil No. 1 State, discovery well.

The pipe line is welded in 750-foot sections on land and transported out into the 6-foot deep water by barges on which the ends of the sections are then welded. Once welded, the line is dropped to the bottom of the submerged area.

Refinery Projects

Globe Oil to Modernize Lemont, Ill., Plant

WICHITA, Kans.—Globe Oil & Refining Co. has let contract for construction at its Lemont, Ill., refinery whereby existing equipment will be revamped so as to yield a greater recovery of heating oils. Work is to be started immediately and is expected to be completed within four months. Additional tankage is also being erected at the plant. The Lemont plant has a daily crude capacity of 16,500 bbls. and 8,000 bbls. cracking capacity.

Move to Lower Insurance Rates On Cracking Units Growing

More refiners are joining the fight to reduce unfair fire insurance rates on cracking units for refiners who avail themselves of independent technical inspection service. Such inspection, it has been proved over a term of years, makes cracking stills a superior risk. The records show that over a period of eight years the ratio of losses paid to premiums collected on independently-inspected cracking units has been 15 per cent, whereas the normal average loss ratio on all classes of property is 50 per cent. In other words, the insurance companies have collected a dollar from such refiners for every 15 cents they have paid in losses.

A committee of Texas refiners headed by Roy B. Jones, president of the Panhandle Refining Co., Wichita Falls, has presented a strong protest against unfair rates to the Texas Fire Insurance Commission. Other members of the Texas committee are: W. D. Richardson, Cosden Oil Corp., Fort Worth; Ray Woolf, Shamrock Oil & Gas Corp., Amarillo; Ben B. Piepgrass, Solvex Refineries, Gladewater; Capt. J. F. Lucey, Talco Asphalt & Refining Co., Mount Pleasant; R. E. Hall, McMurrey Petroleum Corp., Tyler, and J. D. Bright, Waggoner Refining Co., Vernon.

A committee of Oklahoma refiners has also been formed, with Albert Finston, president of Bell Oil & Gas Co., as chairman, to present the matter to the state insurance board. Committees are rapidly being organized in other states.

The unfairness of the rates charged for cracking stills which are inspected by an independent technical agency is apparent, the refiners point out, when it is considered that the expense is borne entirely by the refiners, whereas, in the case of steam boilers the insurance companies spend from 45 to 55 cents of every premium dollar for inspection service.

This fight for fair insurance rates on cracking stills started three years ago when several Dubbs licensees, because of their own favorable fire loss experience, attributed to independent technical inspection service, urged Universal to investigate the effect of independent technical inspection service on fire loss. This was done, and Universal presented a complete appeal, based on the data collected, to the Fire Insurance Executives Association, with no result. The dissatisfied refiners have now taken the matter in their own hands and are aggressively presenting their claims to the insurance authorities in their respective states.

Bryson Company Reorganizes And Changes Name

FORT WORTH, Tex.—The Bryson, Tex., refinery formerly operated by Kraco Refining Co. is now being operated by Bryson Pipe Line & Refining Co., following a recent reorganization in which the company was taken out of receivership. Main offices of the company, which is headed by George Kimbell, are in Wichita Falls. The company operates a 1,500-bbl. plant at Bryson and a pipe line gathering system in Bryson field.

Maritime Starts Construction Of New Houston Refinery

HOUSTON, Tex.—Maritime Oil Co. has started construction of a refinery, having a capacity of 5,000 bbls. per day, on the Houston Ship Channel. The plant will specialize in the manufacture of diesel and other special fuel oils and in aviation and other high-octane gasolines. Mid-Continent Engineering Corp. of Dallas is furnishing plans and specifications and will superintend the construction. The plant is expected to be in operation during the latter part of May.

In addition to the refinery, loading and unloading facilities will be built on the waterfront for handling oils and gasolines to Corpus Christi, Galveston and Port Arthur, where Maritime has bunkers. The new plant will represent an investment of $100,000, L. F. Rothermel, president, said.

No Material Change Likely In Allowable in Texas

HOUSTON, Tex., Apr. 19.—Uniformity of conservation views of oil companies operating in Texas and adjoining states was urged by Col. E. O. Thompson, member of the railroad commission, at the state-wide proration hearing at Austin Monday. He referred to the fact that some companies have been running comparatively large volumes of oil from wells in Louisiana although they have imposed strict restrictions on wells in Texas.

Col. Thompson stated he had no criticism of the state of Louisiana in its proration control, and expressed the opinion that control of oil is a matter of individual state sovereignty.

William Chisholm and Don Fullheart, representatives of the Louisiana Department of Conservation, attended the hearing. That Sunday shutdown of production would be continued and that there would be no material change in present production allowables was intimated at the hearing.

Current production of the state, reported at the hearing, is 1,323,784 bbls. daily. This is 6,016 bbls. under the Bureau of Mines estimate for this month. The bureau's estimate for May was announced as 1,322,500 bbls. daily, which is only 1,284 bbls. under the current allowable.

Kansas Demand Hearing At Wichita April 28

The Kansas market demand hearing will be held at Wichita April 28, when nominations of crude oil purchasers for May will be received.

Natural Gas News

Reasonable Return Held to Depend Upon Conditions

ST. LOUIS, Mo.—An application of the Arkansas-Louisiana Gas Co. of Texarkana, Ark., for an increase in gas rates was rejected by the U. S. Circuit Court of Appeals on the ground that 6 per cent is a fair return for public utilities under current business conditions.

The opinion held the question of what constitutes a reasonable return on invested capital is dependent on current conditions of business and the money market. Judge A. K. Gardner wrote the opinion and Judges John B. Sanborn and Seth Thomas concurred.

Community Gas Co. Seeks Rate Increase in Electra

ELECTRA, Tex.—Community Natural Gas Co. representatives have filed an application with the city council for an increase in the domestic gas rates in Electra. The present rate is 67½ cents a 1,000 feet and the rate the company expects to make effective is $1 for the first 1,000 feet and 76½ cents for each additional 1,000 feet. The proposed increase will amount to approximately 20 per cent.

Chester L. May, vice president and general manager of the company, said: "Though the company contended that the present rates were not enabling them to obtain a fair return on the fair value of their property, the city council some two weeks ago attempted to reduce the existing rates by ordinance. Company officials insisted the ordinance was passed in an arbitrary manner, without a hearing and without regard to property values or earnings of the company and the company felt impelled to protect its interests by insisting on an increase in the rates to provide sufficient revenues to permit the company to earn the reasonable return it has not been receiving heretofore."

Mr. May further stated that the company might pursue legal action in the courts as was followed in a similar case in El Paso. Federal Judge Boydston held an ordinance passed by the El Paso city council without a hearing was null and void.

Clarendon Rate Compromise Is Rejected by the City

CLARENDON, Tex.—Clarendon is not interested in a gas rate compromise with City Gas Co., Mayor W. H. Patrick told the company's attorney, W. H. Penix, at a hearing.

The meeting was called at the request of the gas company to petition for a 55-cent per thousand feet compromise in the five-year-old rate case. The controversy began with passing of a city ordinance reducing the domestic rate from 70 cents to 50 cents per thousand feet.

Mayor Patrick said the city council wishes to let the matter remain in the hands of the railroad commission, which conducted a hearing recently.

Canadian Gas Association to Hold Convention in Toronto, June 9-10

The thirty-first annual convention of the Canadian Gas Association will be held at the Royal York Hotel, Toronto, June 9 and 10. Practical timely papers will be presented. The tentative program follows:

"Combustion Characteristics of Various Gases When Used in Consumers' Appliances," John Keillor, gas engineer, British Columbia Electric Railway Co., Ltd., Vancouver, British Columbia.

"Water Heating With Gas," by G. S. Dawson, British Columbia Electric Railway Co., Ltd., Vancouver.

"House Heating With Gas," by H. B. Johns, assistant superintendent, general service department, Peoples Gas Light & Coke Co., Chicago, Ill.

"Kitchen Gas Appliances," by H. E. G. Watson, superintendent, sales department, Consumers Gas Co., Toronto.

"Water Heating With Gas," from the Ontario viewpoint, by Frank D. Howell, Dominion Natural Gas Co., Ltd., Brantford, Ontario.

"Distribution," by Erick Larson, of New York.

"Devices for Detecting Gas Leakage," by P. W. Geldard, Consumers Gas Co., Toronto.

"The Value of Gas in Industry," by Raymond F. Mann, Wenz-Mann Co., Kenmore, N. Y.

Address by Merrill N. Davis, S. R. Dresser Manufacturing Co., Bradford, Pa.

Charles A. Munroe Award To Be Made in October

Presentation of the Charles A. Munroe Award, one of the highest honors bestowed by the gas industry, will be made at the annual convention of the American Gas Association in Atlantic City, N. J., next October. The award consists of a substantial sum of money and a permanent certificate. It is made annually by the association to the individual judged to have made the most outstanding contribution toward the advancement of the gas industry.

The accomplishment may be along any line. Since the first award in 1929, it has been given for developments in refrigeration, labor saving accounting, rate making, dealer cooperation, sales expansion, public relations, research and change-over from one to another kind of gas. It has been won by a distinguished group of individuals.

Addison B. Day, chairman of the board, Southern California Gas Co., is chairman of the 1938 committee which will judge the applications submitted. Other members of the committee are: George H. Clifford, president, Stone & Webster Service Corp., and E. M. Farnsworth, president, Boston Consolidated Gas Co.

Companies employing individuals who are deemed worthy of a consideration for the award are urged to sponsor applications in their behalf. All applications for the 1938 award should be filed with the American Gas Association, 420 Lexington Avenue, New York City, before August 1, 1938.

Gas Sales Increase in 1937 In Pacific Coast Section

Gas customers, sales and gross revenues of Pacific Coast gas companies showed substantial increases in 1937 over 1936. While total gas sales increased 8.4 per cent, domestic sales were 19 per cent greater than in 1936 due in part to the record cold weather in January and February of 1937. An increase in commercial and industrial sales of 8.2 per cent would have been greater but for the necessity of shutting off large surplus customers during that period. Gas used in electric generating plants declined 23.7 per cent largely because of favorable water conditions which permitted the more extended use of hydro plants.

Pennsylvania Petroleum and Gas Conference on May 27 and 28

OIL CITY, Pa.—The tentative program for the eighth annual petroleum and natural gas conference, sponsored by the Pennsylvania Grade Crude Oil Association, the Pennsylvania Natural Gas Men's Association and the School of Mineral Industries of Pennsylvania State College has been announced by Sylvain Pirson, chairman, as follows:

Oil session, Friday, May 27: "Streamlining Industrial Safety," E. C. Spring, Pennsylvania Manufacturers Association; discussion, H. D. Brown, Jr., Brundred Oil Corp.; "Economics of the Pennsylvania Oil Situation," John D. Gill, Atlantic Refining Co.

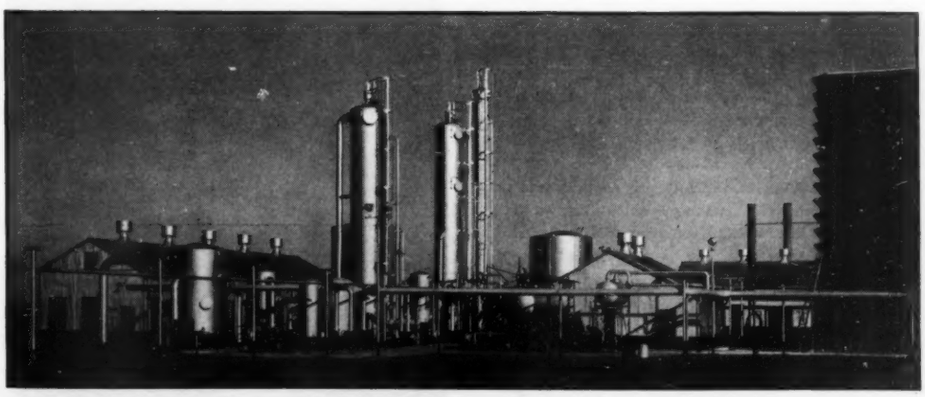
Gas session, Saturday, May 28: "Control of High-Pressure Wells," John A. Thompson, Otis Eastern Service, Inc.; "Rotary Drilling in the Appalachian Region," Maurice E. Nicklin, Oil Well Supply Co.

At the annual dinner Friday evening a motion picture, "The Life Story of an Oriskany Sand Gas Well in Northern Pennsylvania," will be shown with explanations by J. G. Montgomery, United Natural Gas Co.

Natural Gasoline

Construction Started on New K.M.A. Gasoline Plant

Construction has been started on the new natural gasoline plant, costing approximately $500,000, in the K.M.A. pool near Wichita Falls, Tex., which is being built jointly by Sunray Oil Co. and Phillips Petroleum Co., it was announced by C. H. Wright, president of Sunray. Both Sunray and Phillips have increased substantially their holdings in the K.M.A. area during recent weeks, it was said, and now control approximately 4,000 acres of casinghead gas contracts in that vicinity.



Humble Oil & Refining Co.'s new natural gasoline plant in the Flour Bluff field, near Corpus Christi, Tex. The plant has a capacity of 30,000,000 feet daily and is of the compression-absorption type

Dr. Whitmore Discusses Demand for Synthesized Oil Products

The fourth annual meeting of the Oklahoma section of the American Chemical Society was held in the Tulsa Building, Tulsa, April 16. J. R. Marshall, chairman of the section, introduced the president of the American Chemical Society, Dr. Frank C. Whitmore, of Pennsylvania State College, who delivered a lecture on the hydrocarbons.

Dr. Whitmore entertained the large audience with descriptions of the numerous methods now known for the synthesis of hydrocarbons and predicted that in the very near future processes of immense importance would be put on a commercial basis.

The speaker referred to the remarkable developments made in the coal tar industry for preparation of dyes, medicines and other aromatic hydrocarbons. Whereas for some years the chemist had found it difficult to decompose the hydrocarbons of petroleum, within the past few years the refiner has found it possible to produce many valuable substances from refinery gases. The cracking and polymerization processes are now yielding commercial products unthought of as possibilities 10 years ago.

The simplest of the hydrocarbons, methane, constituting the greater part of natural gas, is the foundation material from which a host of chemicals are to be prepared. It appears that methane will be a cheap source of hydrogen, essential for hydrogenation as applied to petroleum and to coal.

The present methods for manufacturing acetylene are relatively expensive but methane and ethane have been found suitable for the synthesis of this substance and much research is now being directed to a process which will reduce the cost of manufacture so acetylene will be available at much lower cost. There are also the olefins, an abundant supply being in refinery gas or converted from the hydrocarbons of natural gas, which are suitable for the manufacture of high-grade motor fuels and many other substances.

Dr. Whitmore directed attention to the fact that octane and heptane, the first standards for indicating antiknock value of motor fuels, originally sold at $25 a gallon but now fuels are being made in excess of 100-octane value which will permit airplanes to operate at exceptional speeds at high altitudes and in place of selling this product for $25 a gallon, it probably will be available as low as 10 cents a gallon.

The speaker referred to the discovery of simple hydrocarbons which may be converted to compounds much superior to known substances for anaesthesia. Simple and cheap methods for making acetic anhydrite from natural gas hydrocarbons will result in producing artificial silk at a much lower cost. In a similar vein, attention was directed to the hydrocarbons as a source of powerful explosives. Dr. Whitmore described methods now in use for making alcohol from natural gas and petroleum hydrocarbons and predicted if the time ever comes when it will be desirable to use this material for motor fuel, the petroleum refinery can be converted quite readily to an alcohol manufacturing plant, where alcohol could be produced in immense volumes.

Obituaries

CHARLES A. PERRYMAN, district sales manager, cable division, American Chain & Cable Co., Inc., Houston, Tex., died suddenly on April 12.

JOHN RICHARD RILEY, 56, born at Perry, N. Y., September 18, 1881, gauger of Sinclair Refining Co. pipe line department since November 1, 1909, and a former employe of Prairie Oil & Gas Co., died at his home at Jenks, Okla., April 17.

GEORGE STEINBERGER, 57, Independence, Kans., died recently. For the past 25 years he was an oil and gas producer and took an active interest in the development of oil and gas in Oklahoma and Kansas.

REED STEPHEN WILLIAMS, 48, general superintendent of the West Virginia division of South Penn Oil Co., died at his home in Parkersburg, W. Va., April 15. Death followed an attack of pneumonia.

Born December 29, 1890, in Washington, Pa., Mr. Williams entered the employ of South Penn on June 1, 1908. He became superintendent of the West Virginia division several years ago when C. F. Stevenson was transferred to Bradford.

ROBERT DAVIS CLARKE, 64, oil operator and member of a Peoria, Ill., distilling business family, died in Los Angeles last week. He moved to Los Angeles in 1921 and concentrated on development of oil properties.

Texas Co. Superintendents Hold Annual Meeting

The annual meeting of superintendents of the Kansas-Oklahoma-Kentucky producing division of Texas Co. was held in Tulsa last week, with Harold N. Pardee, division manager, as chairman. Those present included M. L. Terry, J. E. Flanagan, S. H. Benner, M. J. Heald, J. N. Troxwell, M. G. Miller, H. F. Johnson, W. B. Cooper, H. H. Arnold, R. M. Langdon, Stanley Donnelly, L. J. Whetsell, Joe Hale, H. L. Van Deventer, C. H. Kemp, C. C. Kelley, G. L. Pitcher, A. L. Kraft, M. C. Harrell, C. C. Virgin, C. H. Carpenter, E. F. Dale, V. M. Irwin, and W. M. Cutshall.

P. J. Shouvlin Retires After Fifty Years of Service

On the anniversary of 50 years of active service to the oil industry, P. J. Shouvlin, chairman of the board of directors of the National Supply Co., announced his retirement at the annual meeting in Pittsburgh, Pa., April 6.

Mr. Shouvlin commenced the manufacture of gas engines in 1888, and 1893 began to furnish engines for oil well pumping and has been intensely interested in the development of gas and diesel engines for use in drilling oil wells, power pumping units, pipe lines and for general stationary and marine power purposes.

P. J. SHOUVLIN

In 1928 he merged his company, then known as Superior Engine Co., with National Supply Co., which had distributed Superior engines for 25 years previously in the oil country.

Mr. Shouvlin's active career again proves the distinctive American pattern of opportunity to start a business and to continue and enlarge it successfully over a long period.

Mr. Shouvlin continued active in the business beyond the retiring age, but having reached 75, after 50 years of service, he felt it desirable to be relieved of active duties. He will continue to serve as a director and keep in touch with the business and with his many friends in the oil country.

Way Cleared for an Appeal on Pennsylvania Investigation

HARRISBURG, Pa.—Clearing the way for an immediate appeal to the state Supreme Court, the Dauphin County court has dismissed formal exceptions to its decision outlawing the Pennsylvania oil commission's investigation of the petroleum and gasoline industry in the state.

Judge John E. Fox sent the case to the appellate court in making final an order directing the commission to abandon its inquiry and prohibiting the state's fiscal officers from paying any more of its bills.

Magnetic Storms

Tucson, Ariz., observatory of the U. S. Coast and Geodetic Survey report a moderate magnetic storm began at 6 a.m., April 13 and continued until 8 p.m., April 14. A second severe storm began at zero hour on April 16 and continued until noon April 16. All times central standard.

THE MARKETS*

CRUDE OIL: *Major company notifies stripper well producers in Allen and Bourbon counties, Kansas, it will cease purchases effective May 1. Action due to low gravity of oil. Weakness again apparent in East Texas field where posted schedules continue to give premium over same grade crude in other Mid-Continent fields. Preliminary reports indicate that May demand for crude will be about the same as April.*

REFINERY: *Seasonal gain in demand for gasoline is helping sellers in some areas but heavy stocks continue to be threat to tankcar markets. All grades of fuel oils generally dull. Substantial reductions in output in Pennsylvania and Mid-Continent lubricating oil output expected to aid markets.*

TANK-WAGON AND POSTED DEALER: *Gasoline appears to be stronger with sales increasing. No general changes in prices.*

FINANCIAL: *General advance Saturday aided oil stocks. Average of 30 stocks for week ending April 16: High, 28.07; low, 25.80; close, 27.98. Week ending April 9: High, 26.99; low, 24.36; close, 26.84.*

**Detailed information in market section.*

AMERADA CORP. *reported for 1937 net income of $2,400,028 equivalent to $3.04 per share compared with $1,983,901 or $2.52 per share in 1936.*

STANDARD OIL CO. OF CALIFORNIA *reported for 1937 net income, after all charges, of $41,254,778 equivalent to $3.17 per share, compared with net income of $23,310,223 or $1.79 per share in the preceding year.*

TIDE WATER ASSOCIATED OIL CO. *reported for the quarter ended March 31 net income of $3,250,264 equivalent, after preferred dividends, to 42 cents per common share. This compares with net income of $3,328,303 or 38 cents per common share in the first quarter of 1937.*

UNION OIL CO. OF CALIFORNIA *reported for the quarter ended March 31, 1938, net income of $2,450,000 or 49 cents per share compared with $2,250,000 or 47 cents per share in the first quarter of 1937.*

PENBERTHY PRODUCTS

Hydraulic Ejector

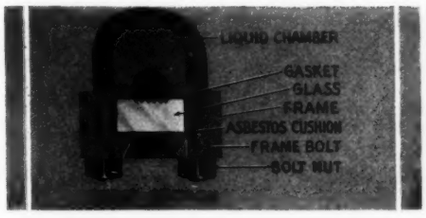
Steam Ejector

SIMPLICITY

the outstanding feature

of the **PENBERTHY REFLEX GAGE**

(Licensed under Jerguson Patent)



● "It is the most simple gage to service that I have ever seen." This statement is typical of the remarks made throughout the oil fields since the Penberthy Reflex Gage was introduced.

Note particularly the U-Bolt type of construction that is the strongest and the simplest to service. To replace a glass, simply remove the nuts on the face of the gage . . . it is unnecessary to work between the gage and the boiler.

The Penberthy Reflex Gage shown here is available in both Navy Bronze and Malleable Iron; it is recommended for working pressures to 350 lbs. at 450° F. Gage is furnished complete with Penberthy "Dripless" Drain Cock shown.

Other Penberthy Reflex Gages are made in any length desired for higher pressures and for various kinds of liquids. Any leading oil well supply distributor will be pleased to quote upon your particular requirements.

PENBERTHY PRODUCTS

PENBERTHY INJECTOR COMPANY *Manufacturers of* QUALITY PRODUCTS *Since 1886*
DETROIT, MICH. • Canadian Plant, Windsor, Ont.

"Safeguard" Automatic Liquid Level Gage

"Navy Type" Liquid Level Gage

"All-Iron" Automatic Liquid Level Gage

Automatic Cellar Drainer (Water or Steam Operated)

Automatic Injector

Gas Engine Lubricator

Snap Lever Oiler

Automatic Electric Sump Pump

Spring Compression Grease Cup

Plain Compression Grease Cup

Screw Plunger Grease Cup

INTERNATIONAL NEWS

Production in Poland Less, But Above Year Ago

Gross crude oil production in Poland decreased to 312,185 bbls. in January, 1938, compared to 316,216 bbls. in December, 1937, but was slightly higher than for the preceding January.

Polish refineries processed 44,710 tons of crude during the month and produced 40,910 tons of products, including natural gasoline.

Internal consumption was reported at 32,871 tons and exports at 5,574 tons. Exports were directed to Austria, Czechoslovakia, Danzig, Gdynia, Germany, Hungary, Italy, Norway, Sweden, Switzerland and Yugoslavia.

The Drohobycz area is the largest producer in Poland and during January accounted for 27,762 tons of gross production. Jasio produced 10,403 tons and Stanisawow 4,020 tons. A conversion factor of 7.40 bbls. per ton of Polish crude is generally used.

Petroleum Concessions, Ltd., Forms New Subsidiary

Petroleum Concessions, Ltd., the international group centering its activity in the Near East, has formed a new subsidiary called Petroleum Development (Transjordan), Ltd., with a capital of £50,100.

Control of Petroleum Concessions is vested in Anglo-Iranian, Shell and Near East Development, the latter representing American companies.

Petroleum Concessions previously registered the following subsidiaries:

Petroleum Concessions (Syria and Lebanon), £200,100 capital.

Petroleum Development (Qatar), £100,100 capital.

Petroleum Development (Trucial Coast), £100,100 capital.

Petroleum Development (Western Arabia) £200,100 capital.

Petroleum Development (Cyprus), £50,100 capital.

Petroleum Development (Palestine), £50,100 capital

Production in Venezuela Declined During March

Daily average crude oil production in Venezuela declined slightly in March to 482,250 bbls., a loss of 2,497 bbls., compared with February, but 22,875 bbls. higher than for March a year ago. Lagunillas production was more than 2,000,000 bbls. under the output for March, 1937, but new fields, including Temblador, Tia Juana and Pedernales, coupled with increased output from some of the older fields, more than offset the decline.

The feature of March production is inclusion for the first time of Temblador as a shipping field. Temblador, in eastern Venezuela, averaged slightly more than 6,000 bbls. per day during March. Eight wells are now producing in the field and several others are in process of drilling. Completion of a pipe line outlet during the middle of February enabled producers in the area to market their crude for the first time.

The relative position of producers in Venezuela was unchanged last month. Standard of Venezuela and Lago Petroleum Corp., subsidiaries of Standard of New Jersey, produced 7,355,575 bbls. during March, while the Royal Dutch-Shell group, consisting of Venezuela Oil Concessions, Caribbean Petroleum Co. and the affiliate, Colon Development Co., accounted for yield of 5,644,394 bbls. Mene Grande Oil Co., subsidiary of Gulf Oil Corp., is producing about 500,000 bbls. per month more at the present than for the same period in 1937.

Outside of the decline in Lagunillas production, there are no important changes in the older fields. Increased drilling activity at La Rosa, Mene Grande, Tarra and La Paz has resulted in higher current output than prevailed at the same time last year. The new fields are playing the most important part in maintaining Venezuela production by compensating for losses at Lagunillas. The estimated production by companies and fields for March is shown in the following tables:

VENEZUELA PRODUCTION

By Companies

	March, 1938	March, 1937
Lago Petroleum Corp.	4,460,846	4,898,455
Venezuela Oil Concessions	4,081,981	3,579,500
Standard of Venezuela	2,874,729	2,876,404
Mene Grande Oil Co.	1,851,000	1,358,000
Caribbean Petroleum Co.	1,166,486	1,089,700
Colon Development Co.	395,927	320,300
British controlled	63,488	68,045
North Venezuela Petroleum	55,286	50,074
Total	14,949,743	14,240,478
Daily average March, 1937		459,375
February, 1938, total	13,572,947	
Daily average February, 1938	484,747	

By Fields

Lagunillas	5,790,280	8,032,759
La Rosa Ambrosia	2,651,227	2,195,714
Quiriquire	2,146,127	2,152,826
Tia Juana	1,998,708	22,000
Mene Grande	1,166,486	1,089,700
Tarra	395,927	320,300
Cumarebo	221,144	200,296
Temblador	188,555	.....
Pedernales	155,133	55,138
La Paz	93,241	11,300
Concepcion	79,427	92,400
El Mene	63,488	68,045
Total	14,949,743	14,240,478

French Petroleum Policy Is Puzzling to Importers

French petroleum importers are finding it increasingly difficult to determine the government's regulatory measures due to constant shifts in policy. The uncertainty under which French companies are compelled to do business is due to the political and financial disturbances within the country and because of intensified or lessened threats of war from countries surrounding France. As threat of war grows stronger, the French government is inclined to look first to its fuel supply. There appears to be considerable uncertainty over the adequacy of fuel despite the regulations of about two years ago which require companies to maintain stocks at levels to meet six months' demand.

In a recent order, however, stipulations have been modified by making it clear that the importer need not himself own the storage and distribution facilities on which his licensed quota is based. It is sufficient if he has contracted to lease facilities for the period in question.

Since the new quotas effective April 1, 1938, were first released, revisions have since raised the total gasoline imports authorized for the year to approximately 2,794,850 tons. In the original decree issued last October to cover the fiscal year starting April 1 there were five special licenses unaccounted for in the total. In the licenses issued prior to the most recent revision on March 19 provided for a reduction of nearly 25 per cent in imports of gasoline as compared to quotas assigned in 1935. The missing licenses have now been dealt with in a supplementary order.

Most important among the new licenses is that for the Credit Minier which has been allowed an increase in gasoline imports of 28.4 per cent. In view of the fact that most of the new gasoline licenses issued last October were for reduced quantities, it is difficult to explain the increase for this particular company.

The most important of the new decrees concerns the conversion of the general licenses previously in use into special import licenses in accordance with the emergency decree of 1935. General licenses for the import of quantities less than 300 tons monthly are now abolished and from April 1, 1938, there is only one class of import license issued for periods of three years at a time and subject to periodic revision to the extent of 20 per cent either upward or downward. Since storage restrictions and all other requirements previously imposed on the holders of special licenses now apply to the entire list of petroleum importers, a new element has been established in the French oil business.

At least one or more groups have been formed among the previous holders of general import licenses. Whether this new element will prove an important factor in the French oil business remains a question. There is the possibility that the individual members will not use the full extent of their import quotas and may thus cause disalignment of supply and demand. In some instances the large importing companies have experienced difficulty in supplying their requirements and at the same time observe storage regulations from the quotas assigned. On the other hand, the smaller importers have not in all instances used their full quotas and frequently disrupt the market because of the need to move supplies even against buyers' resistance.

A large majority of the French gasoline import trade, however, remains six or seven companies headed by the government concern, Cie. Francaise des Petroles with Standard Francaise, Jupiter (Shell), Anglo-Iranian and Socony-Vacuum heading the list. The quotas originally assigned in October are shown in the accompanying list:

	Gasoline	Kerosene	Heavy oils
Soc. Standard Francaise des Petroles (S.O.N.J.)	433,700	30,100	123,400
Desmarais Freres (Cie. Francaise des Petroles)	279,600	32,500	5,000
Soc. An. des Petroles Jupiter (Royal Dutch-Shell)	303,200	37,600	*7,700
Soc. Generale des Huiles de Petrole (Anglo-Iranian)	199,000	19,000	†11,600
Cie. Industrielle des Petroles (Socony-Vacuum)	156,500	12,100	.....
Cie. des Huiles Sinco (Socony-Vacuum)	.....	.....	14,700
Soc. An. Fr. Vacuum Oil Co. (Socony-Vacuum)	.....	.....	21,400
Soc. Raffinerie de Petrole du Nord (Petrofina)	80,100	3,600	.....
Raffineries de Petroles de la Gironde (Texas)	.....	.....	15,900
Soc. An. d'Exploitations Minieres Pechelbronn	.....	1,200	‡1,800
Soc. Les Consommateurs de Petrole (Cie. Francaise)	35,500	6,900	25,100
Soc. Lille, Bonnieres et Colombes (Cie. Francaise)	122,900	4,300	1,825
Soc. Francaise de Petroles, Essences et Naphthes (Pechelbronn)	55,000	600	.....
Comptoir Syndical de Distr. des Huiles et Graisses Ind.	.....	.....	§47,900
Soc. Francaise des Carburants (Cie. Francaise)	42,300	.....	.....
Soc. Francaise des Combustibles Liquides (Cie. Francaise)	30,600	1,700	.....
Soc. Alsacienne des Carburants (Pechelbronn)	29,000	.....	.....
Soc. des Petroles Toneline (Berre)	22,400	1,100	300
Soc. Des Petroles du Languedoc (Petrofina)	26,500	.....	.....
Soc. Marseillaise des Essences	23,000	.....	.....
Soc. Commerciale des Carburants	21,900	.....	.....
Soc. Steaua Francaise	20,800	.....	.....
Union des Imporatateurs de Carburants de Nord de la France "Unican"	20,200	.....	.....
Soc. An. France-Russe des Produits de Naphthe "Petronaphthe" (Petrofina)	.....	.....	17,600
Cie Francaise de Raffinage (Cie. Francaise)	.....	.....	15,375
Other	74,400	1,000	15,300
Total	1,976,600	151,700	324,900
Equivalent in barrels	16,801,100	1,175,675	2,274,300

*Including 6,900 tons to be obtained from refining petroleum and its products in its plant at Petit-Couronne, Dept. Seine-Inferieure. †Including 11,400 tons to be obtained from refining petroleum and its products in its plant at Courchelettes, Dept. Nord. ‡To be obtained from refining petroleum and its products in its plant at Merkwiller, Dept. Bas-Rhin. §Beyond 4,300 metric tons, this authorization may be used only with the assent of the Minister of Public Works.

Note.—Gas oil, fuel oil, road oil and soft pitch, hard pitch, petroleum coke, paraffin wax, and petrolatum may be imported without limit. Gasoline, kerosene, supplies of vessels or aircraft, are not included in the quotas.

ENGINEERING and OPERATING

In This Issue

GULF GATHERING COMPLETE DATA ON SOUTHERN OKLAHOMA TEST
By Paul Reed ..... *Page 44*

For the past 10 months Gulf Oil Corp. has been drilling a deep test in Grady County, Oklahoma, and has now reached a depth of over 11,400 feet. Outstanding features of the drilling of this well are presented including a description of the equipment used, drilling procedures, and geological data obtained. A record of the fuel oil consumption required to reach various depth is also given.

SAND MEASUREMENTS AID IN ESTABLISHING RECOVERY METHOD
By Harry M. Ryder and Donald T. May ..... *Page 48*

In order that the producer might know how fast and by what means he can most profitably recover oil from his property it is important that data be obtained on the producing sands and their oil content. Precise methods have been developed for obtaining core samples or cuttings and for analyzing the samples. These measurements are described and possible sources of error pointed out.

CHEMICAL CORRECTION OF WATER USED IN COOLING SYSTEMS
By L. Drew Betz ..... *Page 60*

Presence of solids in water, either in suspension or solution, has long been a problem to all phases of the oil industry. Several methods are in use for preventing scale formation, corrosion and foaming in boilers; here the author describes the application of these methods to treatment of water used in cooling internal-combustion engines.

OIL DEVELOPMENT IN THE CENTRAL PART OF THE ILLINOIS BASIN
By R. W. McIlvain, Jr. ..... *Page 66*

Since the discovery of oil in the deep part of the Illinois Basin in February, 1937, much attention has been devoted to this area. Here the author describes recent developments in the field, type of equipment used, casing programs and methods of completion.

ECONOMICS OF CLEANING DIESEL ENGINE FUELS BY CENTRIFUGE
By H. O. Sears ..... *Page 70*

Exact records have been kept by one pipe line company over the past 2½ years as to the economies resulting from the cleaning of diesel fuels by centrifuge. Results show that less repair work is required and that there is less carbon formation and ring sticking when identical slow-speed diesel engines were operated on centrifugal fuels.

OPERATING IDEAS ..... *Page 56*

PROGRESS IN METALS—*By W. L. Nelson* ..... *Page 58*

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Mud pit and shale shaker have been enclosed to prevent dilution from rain water. This permits the positive control of the mud consistency under all weather conditions and well depths

Gather Compl for Oklahoma

The deepest well ever drilled in Oklahoma is the test being put down in Grady County in the southern part of the state by the Parker Drilling Co. for the Gulf Oil Corp. When the well was spudded in, during the middle of June, 1937, the company agreed to drill at least to 7,000 feet but on reaching that depth it was decided to continue on below 9,100 feet and, later on, still greater depths were aimed at in the vicinity of 12,000 feet. As this is written, the well is drilling at the rate of 26 feet per day at a depth of 11,400 feet. The 7⅝-inch casing was set at 6,927 feet and, as a result, the later part of the drilling has been done with considerably more than 4,000 feet of open hole.

Drilling has continued at a steady rate during the nine months this well has been going down and there have been few interruptions of importance. The formations penetrated have been predominantly shale. The average footage rate has been 2.9 feet per drilling hour. At 11,000 feet the footage rate was averaging 1.73 feet per drilling hour; at this depth it took more than 7 hours to make a trip. In addition to the geological data obtainable in the course of making this test, information regarding drilling conditions is of value as a guide in the future search for oil in the deeper horizons of the Mid-Continent area which are waiting to be explored.

With this in mind, the outstanding features of the drilling of this test are being presented in this article to show the equipment used and the procedures followed in drilling a straight hole with walls in good shape to meet the needs of conditions at this great depth in accordance with the requirements of careful management on the part of the company and the contractor.

The well, known as the R. A. Thomas No. 1, is located near Bradley in the center of SW NW NW section 4-4n-5w, Grady County, Okla. It was spudded in at 10:45 p.m. June 12, 1937. By March 11, 1938, when the well was drilling at a depth of 10,975 feet the elapsed time in reaching this point was 264 days; total drilling hours were 3,767. In the course of drilling it was observed that formational dip averages about 3 degrees from 1,500 to 4,000 feet. Coring at 9,339-44 feet showed formational dip of 35 degrees; but formations drilled in at lower depths are unusually flat. Oil stains are reported at the following depths:

7,915	8,870
8,300-8,305	8,885
8,345-8,350	8,890
8,435-8,440	9,370-9,385
8,660-8,780	9,385-9,468
8,790	9,590-9,640
8,855	9,675-9,704

Formations penetrated are designated as follows:

Permian	surface-3,900
Red bed Pennsylvanian (Pontotoc)	3,900-5,052
Marine Pennsylvanian (Shawnee-Lansing)	5,052-6,232
Kansas City	6,232-7,714
Hogshooter lime, top	6,917
Deese	7,714-9,092
Dornick Hills	9,092-9,547
Springer	9,547-

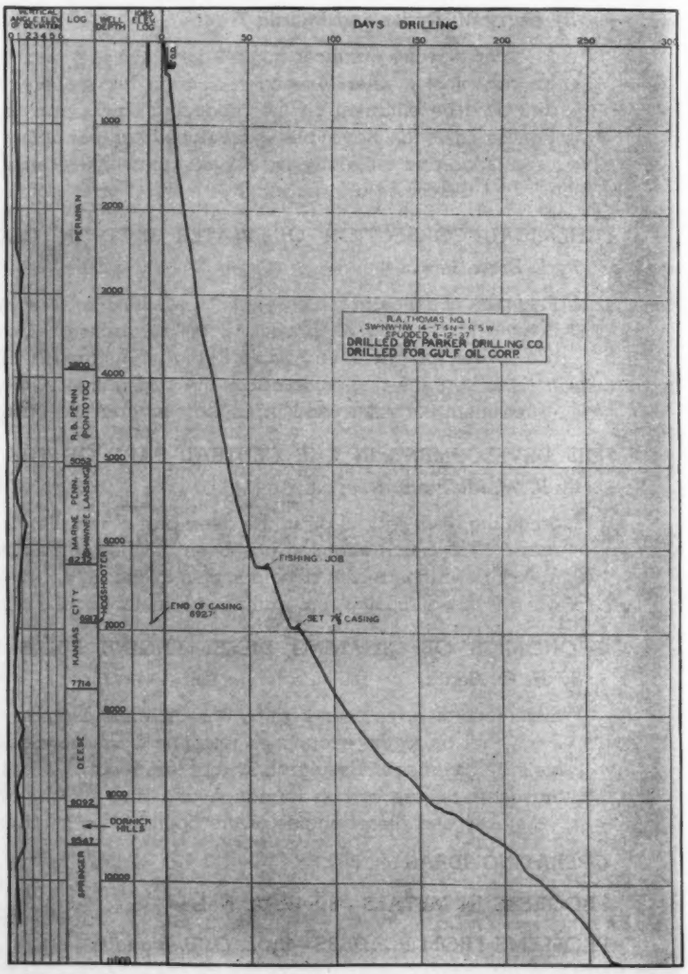
Drilling Equipment

The equipment used in drilling this well is of the heaviest kind used in Mid-Continent drilling, however, the rig as a whole is not as heavy as some used in deep well drilling in southern Louisiana. Still certain pieces of the equipment such as table, chain and pump are the heaviest type available. The rig was purchased from the National Supply Co. in July, 1935 and it is the second diesel-electric rig procured by the Parker Drilling Co., the first one being a rig of the same type purchased six months earlier. During the continuous service of the rig, it has drilled eight wells, two of these being to 5,200 feet and six being to depths below 6,500 feet. The present equipment is adequate for taking the well down to 15,000 feet. It would be possible to go on down to 20,000 feet by changing from 1⅛-inch to 1¼-inch line and using heavier drawworks, hook, and crown block.

Eight lines are employed for the string of 3½-inch drill pipe which has a dead weight of 85 tons; these eight lines being carried at the request of the company for the sake of precaution. The contractor has found that six lines are capable of carrying the load. During the drilling of another well, the present rig carried a load of 111 tons dead weight consisting of 7,400 feet of 6-inch drill pipe which is equivalent to 14,800 feet of 3½-inch drill pipe. Six lines are capable of carrying 318 tons and eight lines have a capacity of 425 tons. These capacities are for dead weight and it is recognized that the effect of mud in the hole increases the weight in handling considerably more than 50 per cent. The crown block has a capacity of 200 tons with a safety factor of 1½ on the yield point; the 10-inch heat treated spring casing hook has a capacity of 213.5 tons; the 76-inch, five-sheave traveling block has a capacity of 225 tons. All of these pieces of equipment carry the trade name of Ideal.

The prime movers consist of two vertical 9-inch by 12-inch Superior 8-cylinder, 350-horsepower, 600 r.p.m. full diesel engines. The engines are equipped with Twin Disc friction clutches and are connected with a common generator shaft by 52 V-belts. During the rig's two and one-half years of operation there have been no belt replacements. The above shaft is directly connected to two Westinghouse 200 kw., 200 volt, 1,000 amperes at 1,200 r.p.m. direct current generators. Direct current electric transmission provides a means for close adjustment of speed and torque; from zero to full load torque at standstill, and from zero to full speed at full load torque. Because of the inherent characteristics of the variable voltage system, the motor torque cannot increase suddenly to impose shock loads on chains, belts and other transmission equipment or drill pipe. The engine cannot be overloaded due to the generator characteristics, but at the stalling point of the motor a torque equivalent of 800 horsepower can be exerted. At no load the motor can rotate up to 1,200 r.p.m. On the same skid with the generators are two 20-kw. Westinghouse exciters. The rig uses Ward Leonard voltage control for the generators.

The diesel engines are of the heaviest type used for drilling power plants and are identical with those used on 11 other diesel-electric rigs

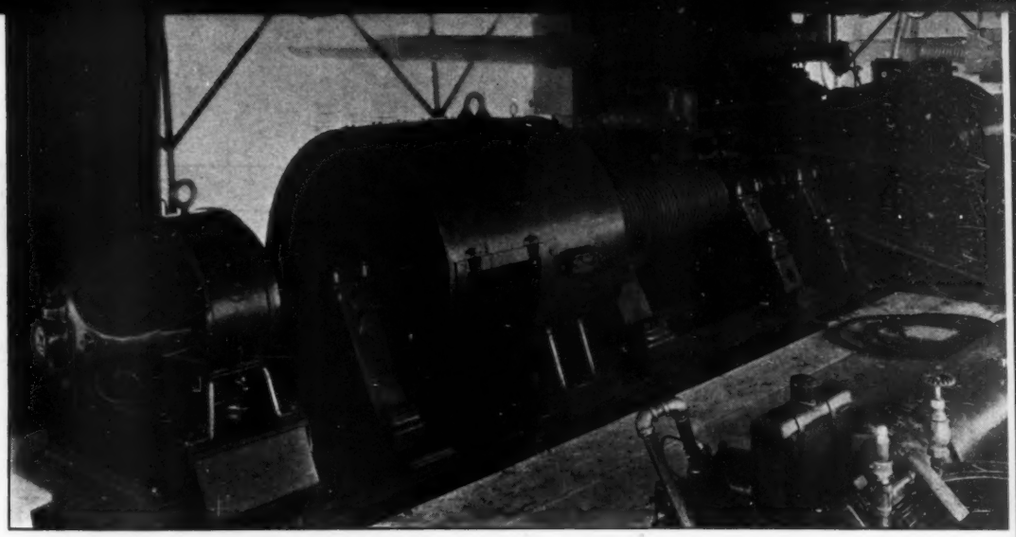


Drilling time curve showing rate at which formations have been drilled and the depths and thickness of the various beds

ete Data

Test

By PAUL REED



Standard heavy-type diesel-electric equipment drilling R. A. Thomas No. 1

operating in this country. Altogether the Parker Drilling Co. has three rigs of this type. In the course of drilling this well, whenever it is necessary to shut down one of the engines for short intervals to change spray nozzles or for other causes the other engine would carry the drilling load. Considering the time the well has been drilling, there has been little time lost in shutdowns, amounting altogether to not more than five days. Because of the importance of keeping the bit on the bottom of the hole and rotating, special care has been given the engines while drilling at the lower depths with the large amount of open hole.

A 4¼ by 2½ by 2¾ air compressor driven by a 5 horsepower Novo gasoline engine, with tanks provides for starting the engines and cleaning dust out of electrical equipment. The engine is cooled with an 8 by 7½ by 24-foot tank, cooling tower and Bentube sections. Circulation of water is provided by a Goulds centrifugal pump driven by a 5 horsepower motor. During the nine months of drilling which have elapsed since June, 1937 the total amount of water used at the rig was 46,238 bbls. Make-up jacket water for the engines has been about 1 bbl. a week.

It is possible to get an indication of the power requirements of drilling a well to this depth by examining the record of fuel oil consumption which has been tabulated by weeks by the company engineers observing these operations. The total fuel consumption in drilling to 11,098 feet has been 105,490 gallons of diesel fuel oil. During the first 10 weeks while drilling to 6,705 feet with 6⅝-inch drill pipe, weekly fuel consumption increased from 2,600 to 2,955 gallons and averaged 2,880 gallons. Taking the 10 weeks following the period effected by the setting of 7⅝-inch drill pipe at a depth of 6,927 feet, where drilling with 3½-inch drill pipe commenced, weekly fuel consumption began by dropping back to 2,370 gallons. This second 10-week period ended by increasing to 3,179 gallons and averaged 2,626 gallons. During this second 10-week period about 2,000 feet of hole was drilled bringing the well down to a depth of 9,097 feet.

In the third 10-week period, when the well was drilled 1,061 feet a depth of 10,158 feet, weekly consumption averaged 2,971 gallons. In the following six weeks of drilling to 11,098, the weekly average declined slightly to 2,917 gallons. Before concluding the presentation of data regarding diesel equipment and its operation it should be mentioned that the engines are lubricated with Gulfpride oil. Furthermore, it may be observed that the drilling of this well has been done with satisfactory performance on the part of the equipment employed. The fact that it has not been necessary, at any time during the drilling of the well, to send a service man to the rig is indicative of the reliability of the diesel-electric equipment.

Throughout the drilling of this well only one slush pump has been used. This is a National Ideal 7¾-inch by 18-inch duplex pump driven by a 300 horsepower, 900 r.p.m. Westinghouse d.c. motor. Within the last month, at a time when the well was drilling at 10,700 feet, a 6¾ by 12-inch pump was installed for standby purposes, but it has not been used. Drilling pressures reported are 1,000 pounds at 8,700 feet and 1,100 pounds between 10,000 and 11,300 feet. Mud circulation is low and the size of pump liners has been continuously reduced in drilling below 7,000 feet. A 7¼-inch liner was used to 7,000 feet; between there and 10,500 feet 6¾-, 6¼- and 5½-inch liners were used successively; below that a 5-inch liner has been used.

All electrical equipment was of Westinghouse construction. A 200-400 horsepower forced draft motor furnishes power to the drawworks, the horsepower depending on the generator hookup, singly or in series. The mud pump is powered by a 200 horsepower forced draft motor. This motor is rated at 200 horsepower when using 806 amperes at 200 volts; but it was operated at 1,000 amperes and 200 volts, thus giving 260 horsepower. The forced draft for cooling the larger motors is created by 3-horsepower blower motors. When there is a likelihood of danger from gas, the blower for the drawworks motor can be placed 50 to 75 feet away from the rig with 12 inch conduit for conveying air to the motor. The drawworks is a unitized National Ideal, 3-shaft, roller bearing equipped, with helical grooved drum, and mechanical equalized brakes equipped with J-M interwoven brake lining. Feed control is manual.

The rotary table is of the National Ideal roller-bearing, fully-enclosed oil-bath type with a table opening of 27½ inches, and is the latest type of table made by the manufacturer. The two swivels with the rig are: National Ideal with a working capacity of 150 tons, fluid passage diameter 4 inches; and a National Ideal with working capacity of 85 tons and a fluid passage diameter of 3 inches. A 3½-inch by 40-foot Ideal alloy forged steel, with upset ends, drill stem (kelly) is used. Drill pipe of two sizes has been used: 6⅝-inch O. D., 25.2-pound Standard Seamless A.P.I. internal upset drill pipe equipped with National A.P.I. regular welded tool joints with 3½-inch water course; 3½-inch O.D., 13.3-pound, Standard Seamless A.P.I. internal upset, with inside diameter of 2.764 inches. Tool joints are 3½-inch by 18-inch Ideal alloy A.P.I., not welded.

The flexibility of the diesel-electric equipment used on this rig can be observed in the operating combinations available for power requirements. In normal drilling the drawworks motor and pump motor are each fed by a seperate generator. As previously mentioned, emergency drilling and emergency hoisting can be handled by one engine alone. In normal hoisting, the drilling motor is fed by generators No. 1 and No. 2 connected in series. The generators are wired in such a manner that their outputs are normally not compounded. However, at the driller's option, the generators can be compounded by connecting them in series by means of a switch on the rig floor. Fuel is injected into the engines under a constant pressure of 5,000 pounds per square inch and is maintained by a rail system servicing all cylinders at equal pressures. The exhaust

Diesel-electric rig drilling Gulf's deep test in Grady County, southern Oklahoma

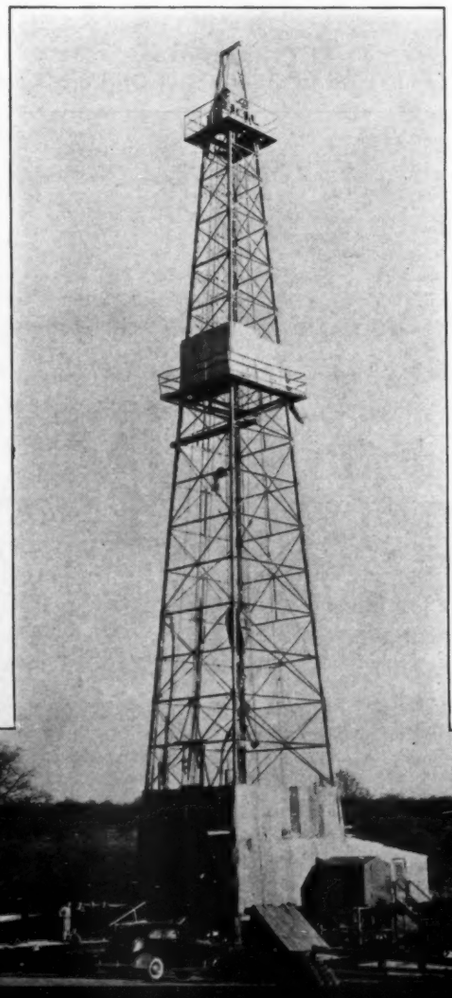


TABLE 1—SIZE OF HOLE AND DRILL PIPE

Hole sizes:
12¼-inch 0-4,175 feet (Reamed to 19½ inches to depth of 332 feet)
11 -inch 4,175-6,927 feet
6¾-inch 6,927- .... feet
Drill pipe:
6⅝-inch, 25.2 pound 0-6,927 feet
3½-inch, 13.3 pound 6,927- .... feet
Bits used in making hole:

Make	Type	Size (inches)	Number used	Footage made
Reed	DK-1	12¼	2	412
Reed	B-R	12¼	6	820
Hughes	OSQ	12¼	10	2,762
Hughes	OSQ	11	29	2,725
Reed	DK-1	11	1	39
Hughes	OWS	6¾	119	3,916
Hughes	WSI	6¾	3	29
Hughes	D (2-cone) ..	6¾	1	88

temperature of each engine is approximately 750° F. at full load. Time consumed in making a trip was approximately 2½ hours at 5,000 feet; 6 hours at 9,000 feet; 7 hours at 11,300 feet.

The hole is exceptionally straight; the maximum corrected vertical deviation is 1¾ degrees and there is only one point with a deviation that high. Acid bottles have been used for well surveys. Sizes of hole and drill pipe are shown in Table 1.

While drilling at 10,975 feet at the rate of 1.73 feet per hour, the last bit run made 182 feet of hole (bit was a 6¾-inch OWS Hughes tricone). This is the best performance of any bit since setting 7⅝-inch O.D. casing at 6,927 feet.

Two fishing jobs are reported. When the hole was at 6,249 feet, 6⅝-inch drill pipe twisted off at 6,049 feet; the pipe was fished and the time charged to fishing was 176 hours. A drilling bit failed at 8,623 feet and cones were retrieved with a basket. Time charged to fishing was 78½ hours. In the case of stuck drill pipe while drilling the deeper horizons, Halliburton equipment was used to obtain higher pressures.

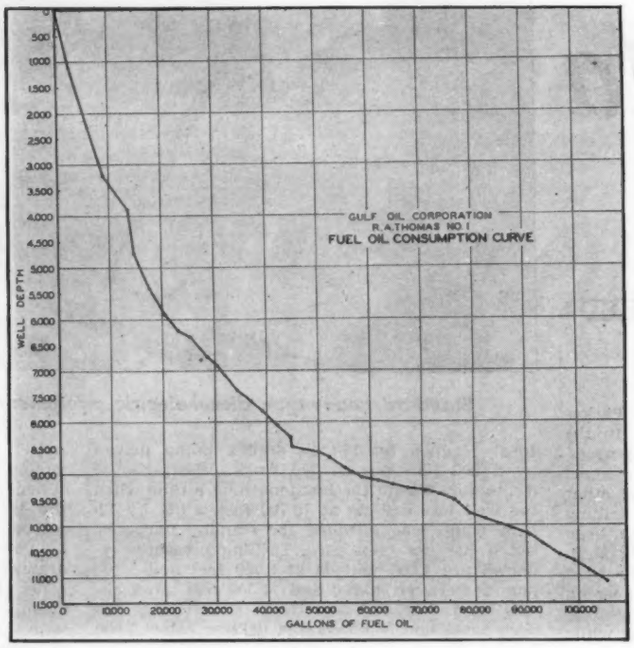
Casing Program

Sixteen-inch O.D.—300 feet of 16-inch O.D. 75 pounds, 8-thread, 1,000-pound test, new National s.s. grade "C" surface pipe, cemented with 1,300 sacks; cement circulated in cellar. Pipe set at 322 feet, 6-inch (rotary table measurements).

Seven and five-eighths inch O.D.—65 joints, grade "D," 30-pound National s.s. 2,500 pounds test, 1,987 feet. Seven inches: 129 joints grade "C," 29.7-pound National s.s. 1,900 pounds test, 3,967 feet; 34 joints grade "C," 26.4-pound National s.s. 1,600 pounds test, 954 feet 6 inches. Pipe was set at 6,927 feet and cemented with 800 sacks.

The feature of drilling this well which is distinctly unusual is provision made for protecting the drilling mud against dilution from rain water. For this purpose, working pit, mud troughs, and shale shaker are covered with a sheet metal structure. The hole is kept full of mud at all times by means of a cellar fill-up valve. The total material purchased for addition to the mud (to 10,975 feet) is as follows:

Aquagel (sacks)	827
Baroid (sacks)	365
Shafter Lake Clay (sacks)	205
Stabilite (pounds)	80
Lime (sacks)	28
Fibrotex (sacks)	67½
Cotton seed hulls (pounds)	10,380
Oats (pounds)	640
Wheat bran (pounds)	1,000
Alfalfa hay (bales)	1



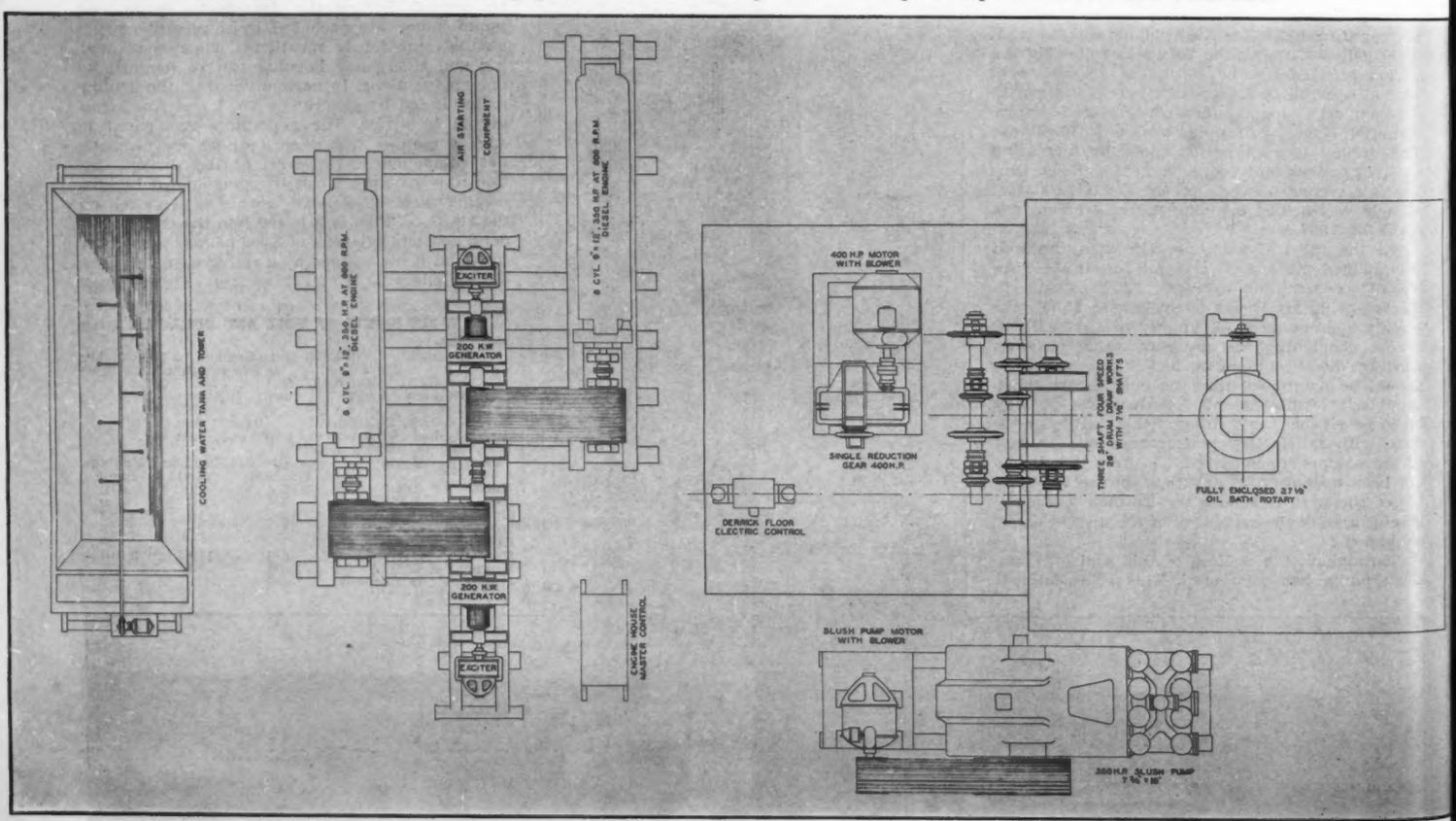
Cumulative fuel oil consumption curve. Dots on the curve represent weekly reports of fuel consumption. Down to 4,500 feet tank gauges were used in recording fuel consumption; below that depth, records were based on fuel oil deliveries

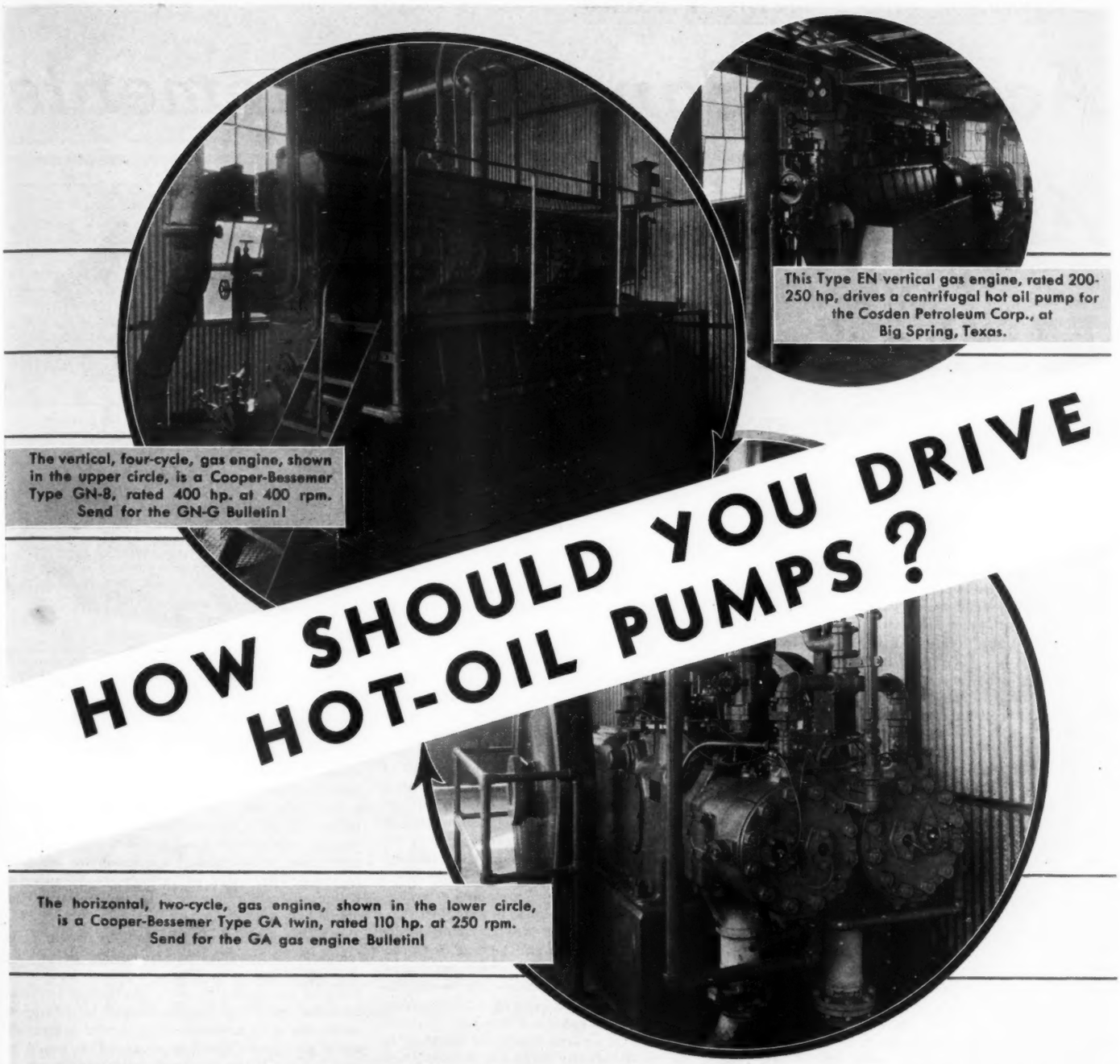
The principal trouble with lost circulation occurred between the depths of 9,102 and 9,150 feet. Above this point the commercial materials added were 140 sacks of Aquagel and 2 sacks of lime. It is believed that lost circulation at this part of the hole (somewhere between 9,095 and 9,170 feet) was due to conditions existing in the Cherokee formation which was topped at 8,000 feet. At the depths of 9,102, 9,150 and 9,156 feet mud loss amounted to approximately 2,280 bbls. Between the depths of 9,910 and 10,026 feet mud loss was 600 bbls. and there was trouble due to stuck drill pipe. After the first mud loss at this part of the well, it was noticed that when the weight of the mud increased to a certain point loss of circulation would occur. Alfalfa hay was added in the course of curing lost circulation as an experiment with the theory that the long strands would bridge and hold the Fibrotex and other materials being added to the mud. Above this zone of lost circulation occurring below 9,102 feet, there was some lost circulation at 4,000 feet and 6,700 feet. Salt water encountered at 7,200 feet floculated the mud. It was found while drilling down to a depth of 9,100 feet that after a trip there were practically no cavings on the bottom. Below that depth the hole has caved intermittently.

The condition of formation samples is excellent, being taken in the usual manner by catching cuttings on a board at the lower end of the shale shaker. Some experimental coring was done between depths of 1,500 and 4,000 feet to test the possibilities of the retractible core barrel under Mid-Continent conditions, in the course of which 19 cores cut 181 feet, recovering 153 feet.

Latest reports on Gulf Oil Corp. No. 1 R. A. Thomas show the well was drilled to 11,415 feet, where the drill pipe was stuck. After spending three weeks in freeing the pipe it was decided to abandon the well. The derrick is being dismantled, and the hole will be plugged.

Diagram of diesel-electric equipment used in drilling Gulf Oil Corp.'s deep test in southern Oklahoma


COOLING WATER TANK AND TOWER
AIR STARTING COMPRESSOR
EXCITER
200 K.W. GENERATOR
ENGINE HOUSE HEATER CONTROL
400 H.P. MOTOR WITH BLOWER
SINGLE REDUCTION GEAR 400 H.P.
DERRICK FLOOR ELECTRIC CONTROL
FULLY ENCLOSED 27½" OIL BATH ROTARY
SLUSH PUMP MOTOR WITH BLOWER



This Type EN vertical gas engine, rated 200-250 hp, drives a centrifugal hot oil pump for the Cosden Petroleum Corp., at Big Spring, Texas.

The vertical, four-cycle, gas engine, shown in the upper circle, is a Cooper-Bessemer Type GN-8, rated 400 hp. at 400 rpm. Send for the GN-G Bulletin!

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105 YEARS OF KEEPING PACE WITH INDUSTRY

Accurate Sand Measurements Aid in Establishing Method of Recovery

By HARRY M. RYDER and DONALD T. MAY
Ryder-Scott Co.

Fig. 1—Cable bit dressed for chipping

The major source of income for an oil producer is the oil he brings to the surface and sells. He develops a property with the hope of making a profit. When he buys or leases a property it is obviously important for him to know how much oil he may expect to produce as well as approximately what his costs will be. It is important too for him to know how fast this oil can come and by what means he can most profitably recover it. If the oil is not there or if it is not where he thinks it is, he may, and sometimes does, show a loss for his effort. The same sad situation may occur when he misguesses the character of his sand or oil.

For this vital economic reason a great amount of work is being done throughout the oil regions to measure the oil sands and the oil they contain. At one time all this was left to luck. Because many were unlucky or not so successful as they might have been, and in the effort to secure maximum efficiency in oil-field operations, precise methods have been developed for securing this very necessary information from sand samples. As a result information is now at the disposal of every producer which will enable him to predetermine with reasonable accuracy what may be expected from any specific property and how to go about realizing such expectations in the most efficient manner.

The research work which has been done by producing organizations and colleges is in this manner yielding vast returns to all who are willing. The producer does not need to be a scientist to take advantage of this knowledge. Practical man that he is, he can now put to work all that is necessary to evaluate a property before he acquires it and to best handle it after it is in his control.

As recent literature has amply indicated, the important every-day measurements on an oil sand are permeability, porosity, and saturation. In addition to this, the viscosity, emulsibility, and surface characteristics of the crude oil in question are frequently important.

The permeability of a sand is a measure of the ease with which oil and other fluids will move through it. The methods for making this measurement are well standardized and accurately carried out in many commercial and private laboratories. Although it is well known that the usually determined "air" permeability is not directly representative of the permeability when oil or mixtures of fluids are present, even so, it furnishes a very valuable measure of the exact "tightness" or "openness" of a sand. This information, when considered with the amounts of oil and water in the sand, furnishes a satisfactory foundation for estimating recovery rates and where secondary methods are to be considered, the pressures desirable, and how and where they may be best applied.

Owing to the occasional "freak" condition appearing in a test piece, careful laboratories practice the making of check determinations on nearby sand, and in this manner eliminate to a large extent errors which might otherwise develop from this cause. In certain cases it is necessary to crush the test piece after measurements are complete to determine the possibility of fossils, hidden crevices, or other unusual conditions which may vitiate the results.

Porosity measurements, usually indicated in per cent of the total volume of the sand, form a direct measurement of the capacity of the sand to hold oil. One acre of sand 1 foot thick occupies about 7,775 bbls. of space. The porosity per cent indicates just what portion of this is available to contain oil. Very rarely is this space completely filled with oil. Generally speaking, water and gas occupy a considerable portion of this space, sometimes most of it. Porosity measurements are used in the determination of various other important factors in evaluating a sand or in planning its economic handling.

Several methods are commercially used in making porosity measurements, resulting in varying degrees of accuracy. These too have been competently discussed elsewhere.[1] As is often the case, here the most rapid measurement is not necessarily the most accurate. The careful laboratory never puts speed ahead of accuracy. It would be very helpful if the producer could receive within a day or so a complete report of his sand conditions and the procedure indicated. At the present time this is not possible, if accurate results are to be furnished, but efforts are constantly being directed toward reducing the time required to produce worthwhile tests. The time required now is about one week for this work.

For many purposes the determination of the oil the sand contains is most important. It happens too to be the most difficult. Permeability and porosity characteristics of a sand are reasonably permanent. The saturation of a sand is obviously not. For accurate saturation work it is necessary that pieces of sand be placed in the laboratory technician's hands in essentially the same condition as regards saturation as existed in the sand body. Further, the methods of the laboratory must be such that all of the oil contained in the sand samples can be accurately measured.

The accuracy of saturation measurements from cores, with all precautions taken to preserve the oil content in the core, is frequently open to serious doubt. Cores are always cut under pressure, due

Fig. 2—Chips for complete sand testing. Full size

[1]Yuster, S. T. "Determining the Porosity of Oil sands," Producers Monthly, October, 1937, and others.

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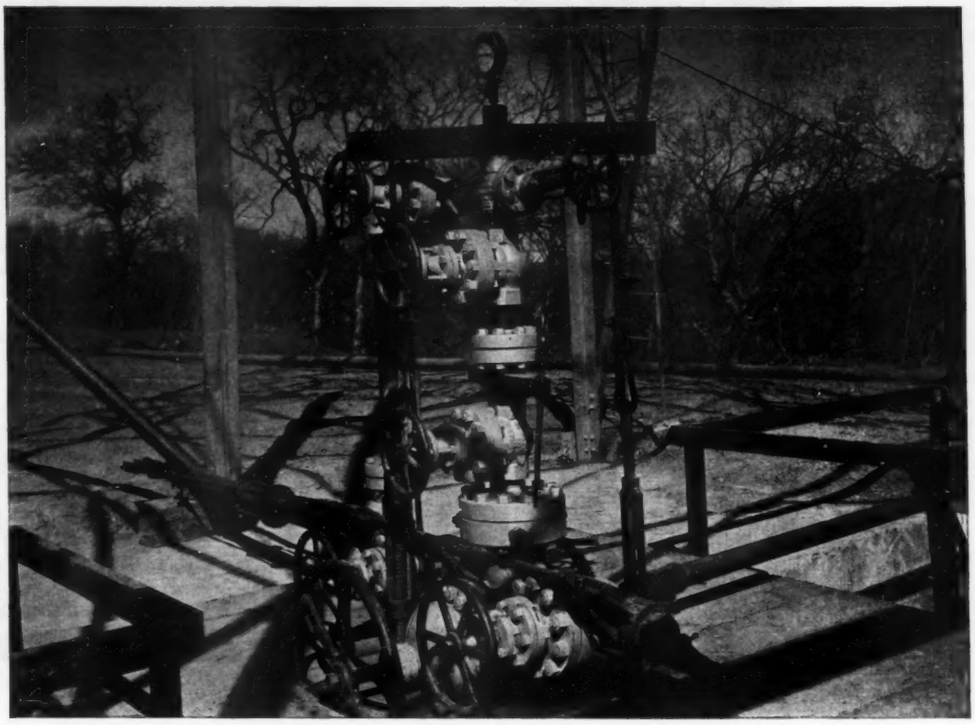

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Fact No. 1—Kerotest High Pressure Valves are made of Manganese Molybdenum steel—the toughest steel known to metallurgical science—with a minimum tensile strength of 100,000 pounds per square inch

Fact No. 2—Kerotest Crosses and Fittings are made of the same identical steel, in the same precision equipment, and to the same exacting tests and inspection

Fact No. 3—Therefore Kerotest Forged Steel Fittings including heat treated Ring Joint Flange Unions, Drop Forged Crosses, Tees and Elbows give the same margin of safety as the world renowned Drilling and Flow Line Valves. Every individual part is a scientifically correct component of the whole.

Result—a Xmas Tree that is 100 per cent safe—equal to every pressure requirement in EVERY respect.

KEROTEST MANUFACTURING COMPANY, Pittsburgh, Pa.

to the water standing in the hole. When rotary tools are used this pressure may be very high. Although water will not drive oil out of the sand without pressure, it will frequently do so with no great pressure. When coring with cable tools, the drilling water may develop a pressure of more than 20 pounds per square inch. Considering the distance this water must move through the sand, this pressure may be the equivalent of more than 10,000 pounds pressure applied to an intake well to move oil to a producing well 150 feet distant. The water necessary for coring is therefore a serious hazard to accurate sampling. This condition is aggravated by the time necessary to take a core, the sand frequently being exposed to water pressure for extended periods.

Proof as to what extent drilling water drives oil from sand in a core is difficult to accumulate. In one case, however, in a quite open sand under a vacuum, a small diamond core was being taken at a depth of about 650 feet. At this point the diamond coring tools were replaced by cable coring tools. It so happened that the diamond tools had started a crooked hole, which the cable tools straightened, and the unique circumstance of obtaining two cores by two methods, side by side, was accidentally accomplished. In this case the saturation in the cable-tool core was more than four times that found in the diamond core, at the same depth and an inch or two distant. The sand conditions were unusually favorable for this result, but even so, the comparison is very striking.

In another case, in a very tight and extraordinarily uniform sand without breaks, with a rock pressure of 30 pounds or more, the sand was partially sampled by chipping. Cable coring tools were then used for the remainder of the hole. The sand for some distance above and below the depth where the tools were changed showed no material variation in permeability or porosity. The saturation in the chips was, however, almost twice that found in the core just below. This evidence is admittedly not conclusive, but it does lend weight to the fear that the drilling water does (since it can) remove some oil from cores.

Obtaining Sand Sample

An effort originally directed toward cutting the costs of sand sampling has resulted in a very practicable and inexpensive method of obtaining sand for laboratory examination with ordinary cable tools, a method which is believed to bring sand to the surface in most cases containing essentially its original content of oil. Of course, if serious bleeding takes place, losses cannot be avoided; but as bleeding often results from allowing the sand to become warmer, precautions can be taken to avoid this condition. The very short time involved in chipping and the bringing of the sand sample to the surface tends to eliminate, to a great extent or entirely, bleeding and evaporation losses which would otherwise occur during the time between the cutting of the sample by the bit and the delivery of this sample in the derrick house.

To obtain such samples the ordinary cable bit is dressed quite sharp, the two faces at the cutting edge forming an angle of less than 90 degrees. The water course is then cut very wide at its lower end. Too rapid wear of the bit is avoided by maintaining heavy metal at the ends of the cutting edge. A bit so dressed requires little more attention than is usual with an ordinarily dressed bit. By using a sand-pump to keep the hole clean, a bit as shown in Figure 1, when dropped about 25 feet to the bottom (the line being caught with the brake) or even when hitched onto the beam and allowed to drill for a few minutes in the ordinary manner, will produce large sand samples. As only a pail or two of water is needed in the well for this procedure—only enough, in fact, to assure any free oil in the hole being kept above the chips so cut—there is insufficient pressure present to drive any oil out of the sand. Further, this is accomplished in a very short time, and the chips are brought to the surface by the sand-pump within a few minutes of the time they are cut.

In this manner any competent driller, using ordinary cable tools, can place sand samples on the derrick floor at very little expense, which more truly represent the sand as it exists in place than by any other method yet devised. It is now up to the laboratory technician to receive these samples and measure the oil content exactly as it existed when the sample reached the surface. Figure 2 illustrates the appearance of some of these chips. Accurate comparative tests have been made on oil saturation, using large chips and small chips produced at the same time. The results indicated the small chip (about one-half inch) produce the same accurate results as the larger ones.

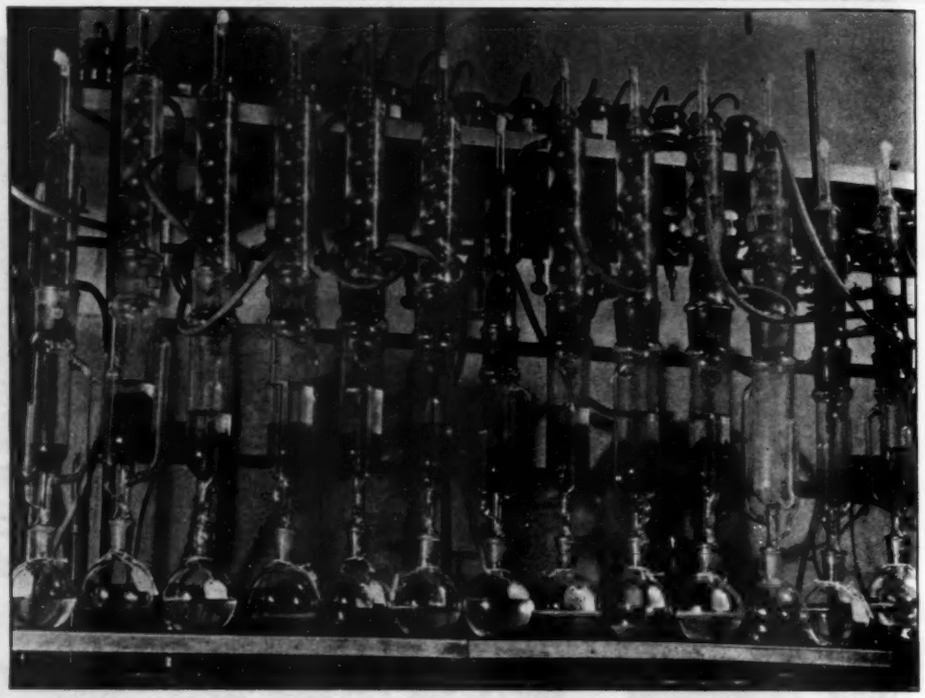

Fig. 3—Battery of retorts for extracting oil from sand

The industry has therefore today an excellent and economical means available for procuring sand samples from which it is possible to make saturation determinations which will in almost every case be truly representative of the conditions as they actually exist in the sand body. Porosity and permeability measurements may be very easily made from these chips.

In cases, however, where the geologists finds it necessary to procure a detailed "picture" of the formation throughout the sand, the chips may not furnish him with all of the information he requires. For such work the chipping will not replace coring. If, however, chip samples are taken at sufficiently frequent intervals through the sand there is no likelihood of "thief streaks" or other dangerous formations being passed up.

Many descriptions and discussions have appeared from time to time on the subject of oil-sand saturation. The most recent of these, by Dr. S. T. Yuster,[2] covers the principles and problems involved in a very competent manner. Here, since we are now able to obtain representative samples of the oil sand by chipping, we are interested only in the accurate measurement of the quantity of oil as it exists in the sand *and at the specific gravity of the oil in the sand body.* Any other results are insufficient, especially where the amount of *recoverable* oil is of importance, which means in practi-

Fig. 4—Removing solvent from oil in a battery evaporator

[2] "Determining Oil Saturation," by S. T. Yuster, Producers Monthly, page 23, December, 1937.

cally every case. Under certain conditions a small error in the determination of the *total* oil content may cause a very large error in the computed *recoverable* oil content. A method of saturation determination selected for speed at a sacrifice of accuracy is of little value, however important speed may be.

Of all possible methods used for oil-saturation measurement in commercial or company laboratories, the retort method and the extraction methods are most used.

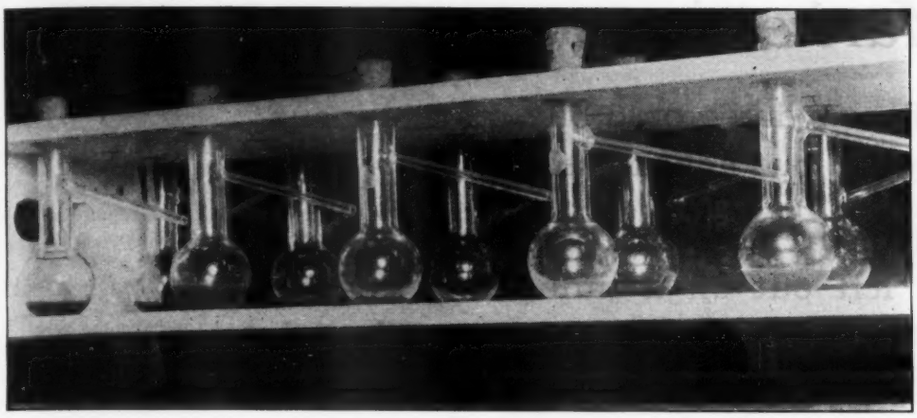

Fig. 5—Actual quantities of crude oil as removed from chips

The retort method requires that the oil-bearing sand be placed in a metal retort to which is attached a condenser. The retort is then heated slowly to a dull-red heat and the oil distilled over to a calibrated receiver.

The oil found in the receiver is very different as to quantity and nature from that originally in the sand. Work done on retorts at the Pennsylvania State College discloses the fact that variable but large quantities of gases are driven from the retort with the oil. In some instances as much as 1,000 times less condensable gas than oil by volume was removed. The weight of this gas often approaches that of the oil measured, and this existed in the sand as oil and to a certain extent as water. This gas is largely a result of cracking. The cracking of crude oils as the temperature is raised starts at about 600° F. At this temperature in many crudes, less than 60 per cent of the crude will evaporate[3] without the aid of steam or vacuum. By retorting, the remainder of the crude is driven from the sand at temperatures above the cracking point. This material when accumulated in the receiver is not crude oil, but a mixture of various petroleum derivatives. The relation of the volume of this distillate to the volume of the crude from which it came will depend on many factors, some of which cannot be controlled. The nature of the crude, the temperature and the integrated time of high temperature exposure, as all refiners know, play a large part in the extent of cracking and the quantity of resultant distilled liquid material. The time and rate of heating do not entirely control this integrated time of exposure. The size of the pieces of sand and the sand permeability enter here to an underminable and unpredictable extent. Furthermore, water molecules, driven off at the higher temperatures, perhaps as a result of dissociation, may be cracked, and the resultant nascent hydrogen and oxygen molecules react with the petroleum vapors to form new, generally gaseous, products. Analyses of gases from retorting confirm this condition.

In other words, many intricate physical and chemical phenomena occur in a retort, the results of which are quite variable and cannot be completely controlled or computed. To overcome this, laboratories apply correction factors to the resultant distillate in an effort to estimate the quantity of oil originally in the sand. Various bases, some widely different, are used for this purpose. One laboratory adds 1 per cent of the weight of the sand to the quantity of distillate. Another weighs the sand before and after retorting and divides the loss in weight between the oil distillates and water in proportion to the fraction of each found in the receiver. Other methods are common, and of necessity arbitrary.

From this it goes without saying that the density of the petroleum distillate will bear no closely measurable relation with that of the crude in the sand, and that therefore no correction in this manner can be applied to accurately determine the loss which may have occurred by evaporation of the crude oil.

The quantity of oil recovered from the retort is therefore no direct measure of the amount originally present in the sand. Correction factors must be and are applied. But no correction factor can or does take into consideration all of the variables involved, hence cannot in general be accurate. The resulting saturation values therefore cannot be accurate. So long as sampling methods were unsatisfactory the errors introduced by retorting were probably no worse than those introduced by sampling. With accurate sampling procedure a practical and economical practice, the errors of retorting do become serious. The sole reason for using retorts today would seem to be the speed of operation. We do not believe this to be sufficient for today's requirements.

Solvent extraction must therefore be resorted to if all of the oil in the sand is to be accurately measured. Of the various methods possible, that of removing and recovering the oil in its natural state, and determining its actual volume, is the most direct and most accurate. To accomplish this the oil must be removed by a solvent, and then recovered from that solvent. As some evaporation of the crude may occur during this procedure it is necessary to be able to accurately correct for this condition. Curves plotted between per cent, evaporation, and density of any one crude are duplicable under a variety of conditions, hence such curves may be used to accurately correct for such evaporation as may occur in crude oil during its removal from the sand and its measurement. In order to do this however, it is necessary that no nonpetroleum molecules be introduced into the crude oil. As the removal of the last traces of solvent from the oil is not practical, the solvent must be an unmodified petroleum derivative. This necessitates the use of petroleum ether.

In most cases it is practicable, and it is always desirable, to start the extraction of the oil as soon as the sand is separated from the cuttings. This is done on the derrick floor by placing each sand sample in a separate bottle and covering the sand with petroleum ether, a simple process. In this manner the laboratory work actually starts on the sand within a few minutes after it is cut. Any evaporation which may take place from the bottles will be ether, and not the crude.

The usual form of Soxhlet apparatus is best for this purpose. In the case of sands of low permeability, or where the crude oil is partially oxidized, or is deficient in light ends, the time requirement for this normal extraction is excessive. Accelerated extraction is therefore desirable and is easily accomplished before the final Soxhlet extraction by placing the oil-bearing sand and solvent in a small pressure vessel, without air, and exposing it alternately to high and low temperatures, and therefore high and low pressures, and in this way forcing a rapid dissolving of all of the oil in the solvent. The particular schedule for this work is dependent upon the crude and the sand involved, but the temperature never exceeds 300° F., and generally is not much over 200° F. The pressure in the vessel is varied from a vacuum of 20 inches or thereabouts to as high as 165 pounds per square inch.

Following this treatment, and the final extraction, the oil removed is concentrated in a small amount of solvent in the extraction flask. It is then placed in a very small engler flask, and a number of these are placed in an oil bath in a

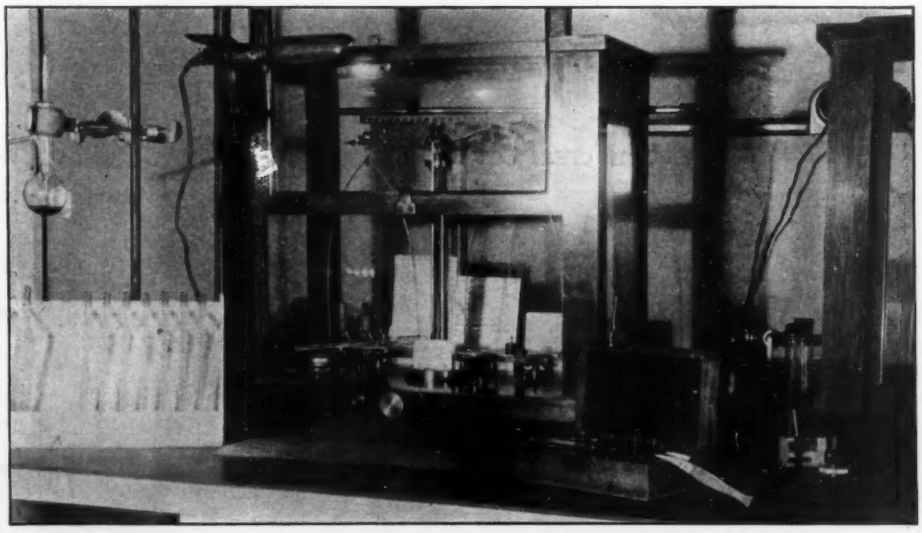

Fig. 6—Measurement of the specific gravity of the oil removed from test pieces

[3]See various Bureau of Mines reports on crude analyses.

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battery evaporator, Figure 4, where the temperature is gradually raised to about 225° F. Here small traces of water are eliminated and practically all of the solvent is removed. Such solvent as remains is a true petroleum fraction and becomes part of the crude and is automatically taken into consideration in the later application of the evaporation correction. Figure 5 shows a group of flasks containing the extracted oil. Note the greatly varying amounts of oil in the flasks.

The net weight of the oil is then obtained on a chemical balance. By the use of accurately calibrated .1 to 1 cc pipettes, the specific gravity, and therefore the A.P.I. gravity, of the oil is accurately determined, and the total weight of the oil is in this manner computed in terms of volume at 60° F. As the gravity of each sample of this oil is now accurately known, it is possible to correct this to the equivalent volume at the gravity of the oil in the sand body by the use of the evaporation curve experimentally determined for the particular crude being considered. Note that this is not a blanket correction, nor an arbitrary one, but a correction separately determined and applied for each sample of oil to be measured. A further volume correction from 60° F. to the sand temperature may be applied if this temperature difference is sufficient to warrant it. Accurate Bureau of Standards tables are available for this purpose, but the old gauger's rule of a correction of 1/20 of 1 per cent for each degree Fahrenheit temperature difference is sufficiently accurate for most purposes.

If the sampling has been accurately performed, as it can be, we have now an accurate measure of the volume of oil in the sand sample at the time of sampling. The volume of the sand can be accurately determined by weighing it when dry, and by the use of a Russel volumeter, a part of the procedure used in the measurement of the porosity of the same sand. It is important to note that the porosity can and should be determined on the identical pieces of sand used for the measurement of the oil content. The measurement of the porosity on a nearby sample is not sufficient, as there are many cases where the porosity will vary considerably in a very short distance. The use of the Washburn Bunting method of porosity measurement may cause considerable error due to the mercury enclosing air bubbles at irregularities in the sand, or at points where the several pieces of sand come in contact with each other or with the glass.

With the oil content and the porosity accurately determined on the same pieces of sand, it is a simple matter to compute the oil content in terms of barrels per acre foot and also in per cent saturation as represented by the samples used. An accurate determination of the per cent saturation is of special importance if the amount of recoverable oil is to be known.

In the use of this extraction method the actual oil removed from the sand is recovered in its original condition, and is therefore available for additional inspection and examination. Numerous unusual conditions have in this manner been uncovered. The most interesting of these, perhaps, has been the determination of solid paraffin in otherwise very productive sand strata, a condition which must seriously affect the amount of recoverable oil. The variable colors of crude have in a similar manner been simply disclosed, and in this manner it is possible to segregate dark crude from that sold as a light material.

We all are interested in knowing the total oil content of the sand. The economic worth of this figure is another matter. It is a well-known fact that not all of this oil, nor generally any major portion of it, is recoverable; hence this value does not represent the true worth of the property nor the amount of oil which can in the future be produced from it.

The work in the laboratory is not complete with the tabulation of the various measurements made on each of the series of samples representing the sand from top to bottom. Usually considerable variation in sand characteristics is found from test to test throughout the sand. It is obvious that these changes will not generally occur at the points of test nor half way between adjacent tests. If the results of the laboratory work are to be of greatest real value to the producer, the location of each change in sand character must be determined and so reported, and the oil content values computed on this basis.

To accomplish this, a correlation of the sand itself, either core or chips and cuttings, with the test specimens and test results, must be worked out with extreme care. This is not simple, and requires considerable experience and an eye for minute variations in the sand texture, but it can and must be done. As a result the actual thickness of the sand stratum represented by each test piece can be determined, and the total and recoverable oil content figures accurately set up.

No producer can afford to pass up pay sand that can be profitably produced. Nor can he afford, in repressuring, to include any thief stratum which may form a serious bypass for gas or water. In shooting unprofitable sand his only loss may be the cost of this shooting, but even that is difficult to justify. If he shoots tight sections too lightly, or highly permeable sections too freely, he is increasing the difficulty of handling all of the sand in a most profitable manner. If he is to handle all of his pay sand in a manner to bring the greatest returns for his effort and investment he must know, not only how much pay sand he has, but the outstanding characteristics of this sand as well.

To be of greatest value to the producer, the laboratory must report its findings in a manner which will enable the producer to apply the results to his wells so as to operate to best advantage. Tables of figures are necessary and accurate, but a wisely prepared log is of the greatest importance in translating tests to profits. Figure 7 is a typical example of an actual well test where chip sampling was practiced.

The shaded column near the left margin indicates the percentage of sand found in each screw. From this it can be readily seen how the sand lies. The usual permeability, porosity, and oil-content profiles are shown. Perhaps the most valuable information may be found in the shaded profile near the right side. In this manner the location and amount of recoverable oil are accurately indicated.

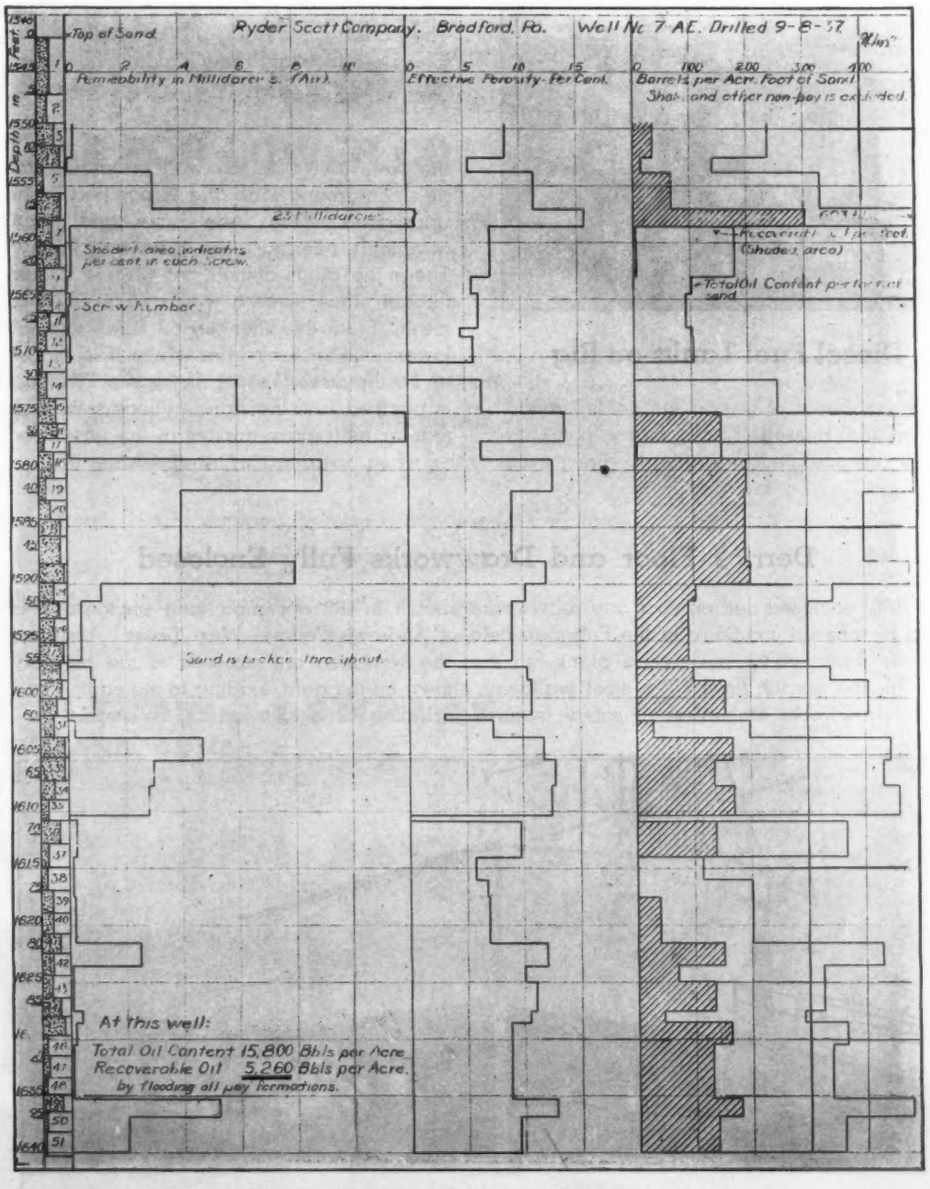
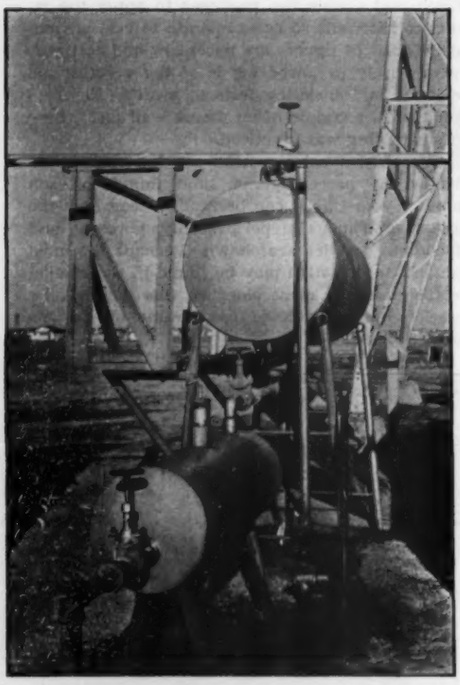

Top of Sand
Ryder Scott Company. Bradford, Pa. Well No 7 AE. Drilled 9-8-37
Permeability in Millidarcys. (Air)
Effective Porosity-Per Cent.
Barrels per Acre Foot of Sand
Shale and other non-pay is excluded
Depth in Feet
Shaded area indicates per cent in each screw.
Screw Number
Sand is broken throughout
At this well:
Total Oil Content 15,800 Bbls per Acre
Recoverable Oil 5,260 Bbls per Acre.
by flooding all pay formations.

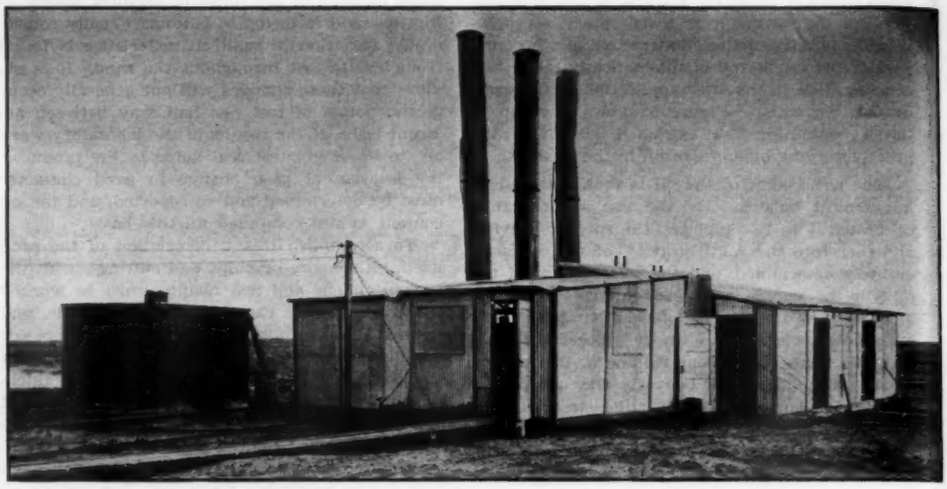
Fig. 7—Specimen chart from laboratory report

OPERATING IDEAS



Diesel Fuel Tanks on Rig

In the absence of gas in the fields around Hays and Russell, Kans., many pumping wells are operated on crude oil direct from the well. Oil from the well gravitates into an underground tank and is pumped to the upper tank shown here by a hand pump, commonly referred to as a one-arm Johnny. There the oil is settled out and is filtered through three screens which have .001-inch mesh. From the filter the oil flows into the lower, smaller tank from where it is picked up by the diesel engine fuel pump. The fuel is pumped into the firing cylinders through regular fuel spray nozzles of the type used when operating with refined fuel oils.

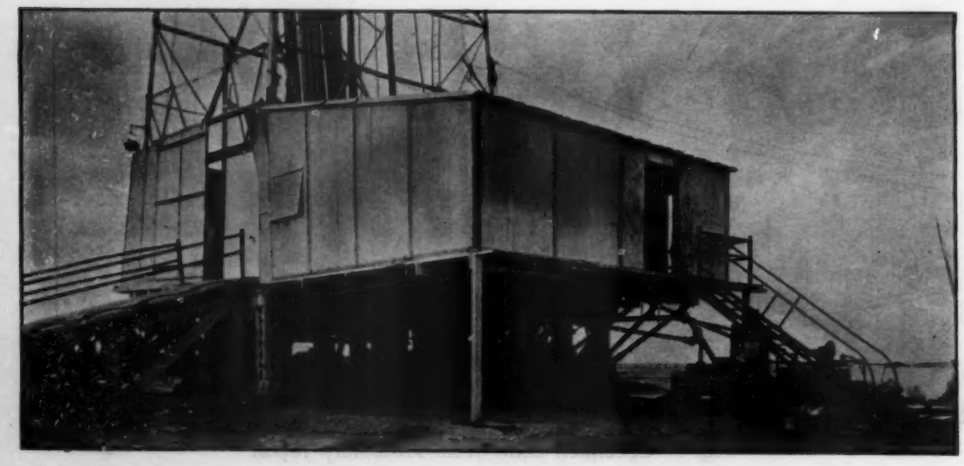


Portable Housing for Battery of Drilling Boilers

Fully-enclosed battery of drilling boilers and boiler pump assemblies being used by one oil company on its drilling rig in the Fuhrman field of central Andrews County, West Texas. The housing is made up of portable sections so that it may be easily torn town and moved to a new location. The building has been found to offer great protection against cold winds, dust and other severe weather conditions, as well as aiding in reduction of boiler heat losses.

Derrick Floor and Drawworks Fully Enclosed

The fully enclosed derrick floor and drawworks shown in the accompanying photograph is used by one oil company in the Fuhrman field of Andrews County, West Texas. A sliding door is provided for the casing plank, so that the workmen are exposed to the air only through the derrick itself. The steel walkway, shown on the right, leading to the engine and drawworks embodies all safety features including nonskid tread on the steps.



Cut-off on Pumping Unit

One operator in the Oklahoma City field, using a long-stroke pumping unit, has installed a safety switch to cut the ignition on the gas engine in case of a rod break. The switch is situated under the counterbalance at the end of the walkingbeam and has a one-half inch clearance from the bottom of the regular pumping stroke. Therefore, if the rods part the stroke is increased enough to contact the switch, cutting the ignition to the engine and thereby shutting down the unit.

Contractors: Truman-Smith Construction Co., Eldorado, Kan.

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Progress in METALS

By W. L. NELSON

Genuine Wrought Iron

Committee A-2 of the A.S.T.M. defines wrought iron as: "A ferrous material, aggregated from a solidifying mass of pasty particles of highly refined metallic iron, with which, without subsequent fusion, is incorporated a minutely and uniformly distributed quantity of slag." Other highly refined metallic irons such as ingot iron and very low carbon steels are similar to wrought iron except that they do not contain slag —and the presence of slag in wrought iron gives it distinctive properties such as a fibrous nature and an increased resistance that has not been duplicated in other pure irons. Among the notable characteristics of wrought iron are the following:

1. *Corrosion resistance.*—The tiny fibrous slag particles are present in enormous numbers in wrought iron, being estimated as more than 250,000 per square inch of cross-sectional area. The glass-like particles act as barriers in stopping corrosion after a short time or force the corrosion to spread over the surface rather than to form a pit.

2. *Fatigue limit.*—Pure iron is normally a ductile material which tends to adjust itself to strains and this property is also evident in wrought iron, but in addition, the slag in wrought iron acts as keying particles in stopping slip or fracture.

Wrought iron can be welded easily, although slightly higher temperatures are required. Another feature is the relatively thick coat of zinc that can be applied to wrought iron in galvanizing. The relatively rough surface of wrought iron results in a more tenacious coating of zinc and one that is often 25 to 40 per cent thicker than the coating that is possible on steel.

Caustic Embrittlement of Steel

Investigations of boilers that have failed by so-called caustic embrittlement have indicated that the difficulty is a very complicated one, and that direct causes for the failures are not always evident. In general, embrittlement has been found to be associated with the use of certain hard waters, caustic soda solutions and with dilute sodium silicate solutions but the presence of such solutions has not always caused embrittlement or cracking of the steel. The boiler usually fails around the riveted joints or other stressed areas.

The complexity of caustic embrittlement phenomena is forcefully emphasized by a recent paper by Schroeder, Berk and O'Brien, entitled "Intercrystalline Cracking of Steel," in Metals and Alloys, page 320, November, 1937. This study shows that many other materials than sodium hydroxide or sodium silicate may cause intercrystalline cracking—among which are solutions of sodium hydroxide which contain manganese salts, titanium oxide, germanium oxide, antimony salts and litharge or lead oxide.

Another disconcerting fact is the unpredictable effect of temperature. Thus, sodium hydroxide-sodium silicate solutions do not produce cracking at the atmospheric boiling point but at a temperature of 250° C. such solutions are quite active. However, small amounts of sodium chromate, sodium nitrate or potassium permangate do activate the sodium-hydroxide solutions at the atmospheric boiling point.

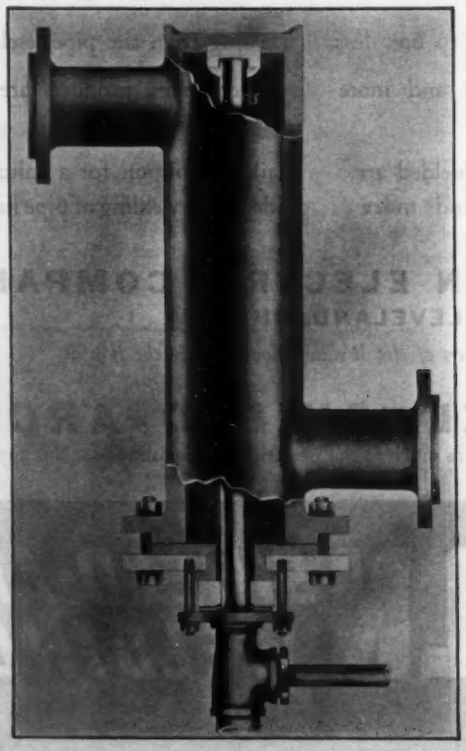
Tests were conducted on cylindrical tube shapes and bent bars. In some tests the specimens were stressed while exposed to the solutions but in other tests the specimen was bent before exposing it to the action of the solution. The results show definitely that it is not necessary to have an applied load on the steel at the time of exposure, to produce cracking. Apparently corrosion fatigue or repeated stresses have little effect on embrittlement cracking.

It is interesting to note that stainless steel is probably more susceptible to the attack of the solutions than any other material that was used in the tests.

The authors suggest that the reader should bend a ½- by ¼-inch bar of cold rolled (S.A.E. 1020) steel into a U shape and boil it in a solution containing 120 grams of sodium nitrate and 0.2 gram of manganous chloride in 100 grams of water. The water that is evaporated by boiling should be condensed and returned to the solution. After 48 hours the specimen will be cracked in several places.

Acid Heating Unit

For heating acids or other severely corrosive liquids, the tantalum bayonet type heat-exchanger or heater has been developed by Fansteel Metallurgical Corp., North Chicago, Ill. The outer jacket through which the corrosive solution circulates may be made of rubber-lined steel, fused silica, phenolic plastic, or any material suitable for the specific requirement. The heating unit is a tantalum "bayonet," a simple tube closed at one end, flanged at the other for connection to a base metal tee through which steam is introduced and condensate drained. The heat exchanger may be installed either horizontally or vertically. When installed vertically, the tee connection is at the bottom, so that the condensate drains by gravity.



Bayonet type heat-exchanger or heater

This type of design, which makes it unnecessary to employ expensive materials for the container vessel, is somewhat novel and introduces a principle of design that should prove useful for many other purposes. It would seem that the bayonet type heating unit might be installed in any existing vessel or container which contains a corrosive liquid that must be heated.

Tantalum is an elementary metal totally inert to practically all acids except hydrofluoric. In the presence of liquids which do not form scale, it is characterized by an exceptionally high rate of heat transfer. Tests with hydrochloric acid have shown coefficients as high as 4,000 B.t.u. per square foot per degree Fahrenheit per hour. Since tantalum is as strong as steel, high steam pressures, which contribute to higher heating efficiency, may be used.

Welding Chromium Steels

Technical Bulletin No. 2 of the Arcos Corp., Philadelphia, Pa., is a useful compilation of data concerning the welding of stainless steel. This company markets the following wide variety of stainless welding rod:

APPROXIMATE CHEMICAL ANALYSES

Cr	Ni	C(Max.)	Others	
19.0	9.0	.07		
18.0	8.0	.07	Ti.	.35
19.0	9.0	.08	Cb.	.80
18.0	8.0	.07	Mo.	2.50
18.0	8.0	.10	Si.	2.25
25.0	12.0	.10		
25.0	20.0	.10		
17.0	25.0	.10		
15.0	85.0			
13.0	60.0			
15.0	35.0			
11.5 to 12.5		.10		
16.0		.10		
18.0		.10		
4 to 6			Mo.	.50
1.75 to 2.25			Mo.	.50

Points of particular interest taken from this bulletin are:

Low carbon content—In welding 18-8 varieties of stainless steel the carbon content of the steel must be kept below 0.08 per cent or the carbon in the steel will precipitate at some point back from the weld, causing not only physical weakness but also a decreased resistance to corrosion. This may be corrected by raising the weld to a temperature of 1,900°-2,000° F. and quenching, which causes the carbides to be retained in solution, but this operation is not necessary unless an extreme degree of corrosion resistance is necessary.

Columbium and titanium—These elements tend to decrease the amount of carbide precipitation that takes place in the steel during welding. The amount of columbium specified for this purpose is ten times the carbon content of the steel and for titanium, four times the carbon content. The usefulness of these elements in the welding rod itself is doubtful and in some cases appears to decrease the corrosion resistance of the weld.

Straight chromium steels—Welds of these steels tend to be brittle, and the more the chromium content the more the brittleness. The stock should always be preheated to 300°-400° F. and the welding operation should be followed by an anneal at about 1,400° F. Brittleness develops because of grain growth and hence the pool of molten material should be kept as small as possible during welding. When possible, welding should be done with a chrome nickel rod rather than a straight chromium rod, to prevent brittleness.

Five chrome and two chrome with molybdenum—These weld materials air harden and hence a special technique must be followed. The stock should be preheated to 400° F. and held at this temperature during welding. After welding, an anneal at 1,550° F. for one hour is recommended, following by slow cooling at the rate of 50° F. per hour to a temperature of 1,200° F.

Corrosion resistance of welds—A wide variation in resistance to corrosion is evident with the rods of different manufacturers although they are nearly identical in composition. This would seem to indicate that the rod-covering employed is of vital importance.

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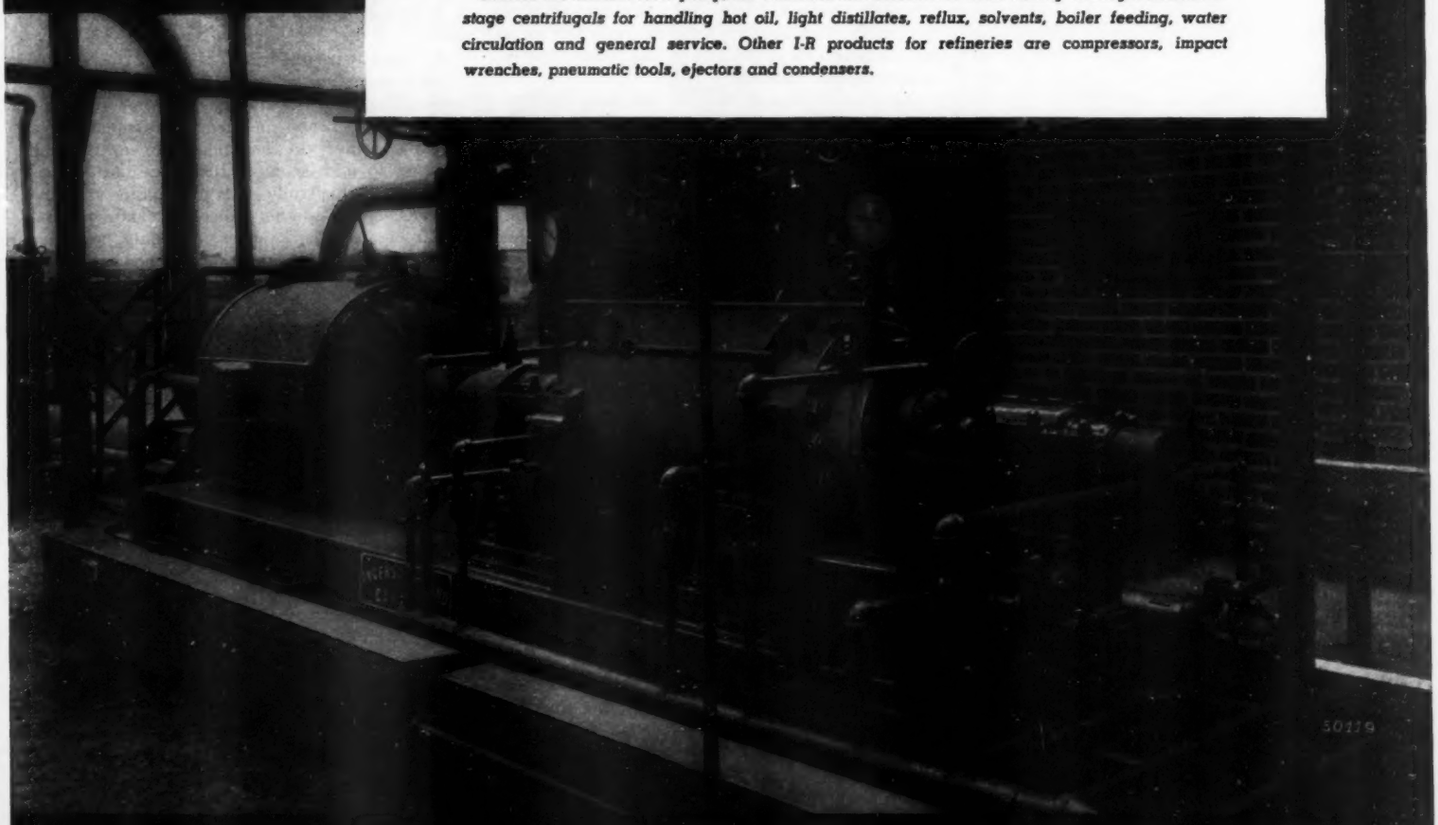

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Chemical Correction of Water Used in Cooling Systems

By L. DREW BETZ
W. H. & L. B. Betz, Consulting Chemical Engineers*

The presence of solids in water, either in suspension or in solution, has long been a problem of major importance in any industry where water is used in process. The petroleum industry is no exception to this statement.

Unfortunately, a perfect water has never been found, in nature, although some waters are of considerably better character than others.

Impurities found in water divide themselves into two main classes, namely, suspended solids and dissolved solids. Suspended solids are those substances which can be removed by filtration, while dissolved solids are those substances which are in solution and thus readily pass through filters. Suspended solids lend themselves for the most part to easy removal, hence most of the difficulties encountered in plant practice, will be found to be due, mainly to the presence of dissolved solids. Table 1 shows those substances which are usually found in water, their principal source, and the difficulties they cause upon evaporation.

Because of the wide variation of these salts and their influence on the character of the water, it very clearly points to the necessity for chemical control. A careful inspection of this list, shows the major difficulties encountered through impurities in water are scale formation, corrosion, and a foaming or priming condition when used for boiler purposes.

Scale deposition itself is of prime importance, because of its effect in reducing heat transfer, as illustrated in Figure 1.

Scale deposition retards heat transfer, regardless of whether it is on the evaporative surface. or whether it is on a surface used for cooling purposes.

Corrosion is due mainly to the presence of substances of an acidic character or oxygen and carbon dioxide in appreciable amounts. The action of these substances is to place the metal in solution.

Foaming and priming tendencies encountered in boiler operations are due mainly to the presence of suspended solids, high alkalinities and the conditions under which the boiler is operating. It is a known fact that ratings and pressures have a decided effect upon the tendency of any given boiler, to prime or foam.

Many methods for dealing with the presence of salts in solution in water, have been proposed, the major portion of which are based entirely upon various chemical reactions. Time does not permit a detailed discussion of all of these various methods, but briefly they are divided into two main classifications: Those referred to as external methods of treatment and those referred to as internal methods.

Among the former, are the lime-soda and Zeolite methods of treatment while among the latter are the use of numerous chemicals, including silicate of soda, phosphates, sodium aluminate, various organic substances and various types of colloidal substances.

Much has been said and numerous articles written on the subject of water for boiler feed purposes. While this is a problem of major importance, in the petroleum industry, the problem of water for cooling purposes has not received as great attention. Time being limited, I would like to discuss the subject of the treatment of water for cooling purposes in detail, as less has been offered on this particular phase of water treatment. Needless to say—any treatment offered for one purpose, must take into consideration, requisites for the other, for in practically all instances, boiler feed water is procured from the same source as the cooling water and if any treatment given to the one supply can be made adaptable for both purposes it is of decided advantage.

There recently appeared in the engineering and operating section of The Oil and Gas Journal (issue of January 13, 1938, page 46) an article entitled "Acid Treatment for Cooling Water to Prevent Scale Formation." In concluding this article, the author states, "In conclusion, we do not recommend the use of sulfuric acid treatment for the reasons noted. If sulfuric acid treatment is used in spite of these factors, it should only be applied under rigid control with a competent chemist in the vicinity." You will notice in this statement, the author makes no exception to this rule. He simply states that sulfuric acid treatment is not recommended to be used under any condition and gives warning of the necessity of having a competent chemist in the vicinity, if such treatment is used "in spite" of these factors.

It has been our experience in working with waters found in the Oklahoma, Kansas and Texas sections, that specific study need be applied to each problem individually and it is our experience that no such far-reaching statements can be made to the effect that any one method is either suited or unsuited to the general treatment of water for cooling or any other use.

There are three main methods that can be applied to the treatment of these waters with varying degrees of success and in giving them consideration one must take into consideration not only the possible results to be achieved, but the capital expenditure which might be necessary in the way of equipment, must likewise be given equal consideration. The three chief methods which can be employed in treatment of water of this character to make them suitable for use as cooling water and prevent scale formation, are:

1. Sulfuric acid and aeration.
2. Lime treatment, possibly coupled with soda ash.
3. Zeolite treatment.

As a particular example, it has recently been our privilege to make a very comprehensive study of the cooling water problem at the plant of a large oil refinery in the Mid-Continent. It is interesting to note some of the facts disclosed as the result of this study. It is my opinion that the best answer, as to the choice of treatment that should be given any water, can only be determined by a detailed study of this character and to carefully choose which of the three methods outlined above, might best be suited to a solution of the problem itself.

To begin with, the raw water supply at this plant, contained solids in very high concentrations. The water was obtained from two sources

*Paper presented before March 12, 1938, meeting of the Oklahoma section of the American Chemical Society at Okmulgee, Okla.

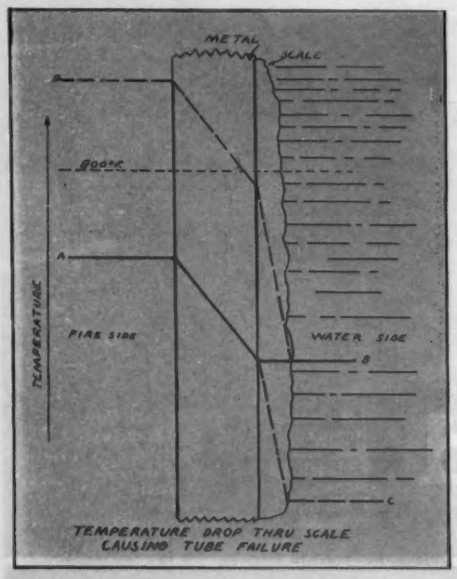

Figure 1

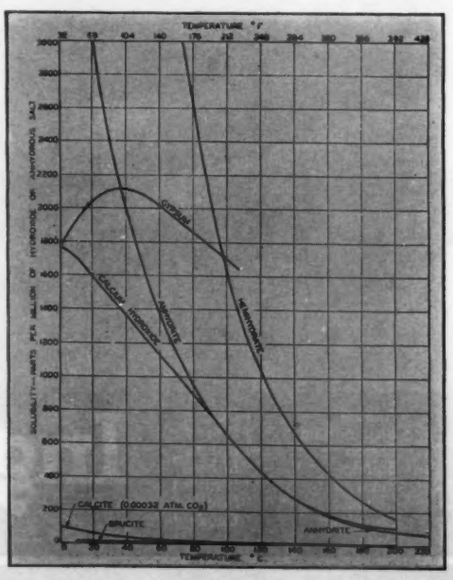

Figure 2

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and was mixed. Table 2 will show the average analysis of the raw water taken from monthly composite samples. These analyses cover a full year's operation and also include maximum, minimum and average amounts of the various constituents.

It will be noted that this water is one that is high in natural alkalinity, containing large amounts of calcium bicarbonate, which under the action of heat will break down, liberating free carbon dioxide gas and precipitating calcium carbonate from solution, forming a heavy scale on the cooling system. This action, caused difficulty in the various heat exchanger units and considerable trouble was being experienced at the plant in question. A composite sample was made of several portions of the deposit formed, the analysis of which is shown in Table 3.

A study of the complete system reveals the distribution of water in accordance with Table 4.

An inspection of the pump log, was made, showing the volume of water pumped to and received from the various departments. This information is summarized and shown in Table 5. This covers operations for a 10 months' period and is representative of an average condition.

Average temperatures of the spray pond and the returns from the various cooling units were found to be in accordance with Table 6, readings taken during the year 1936.

Practically 70 per cent of the cooling water was delivered to the topping still. The temperature of the returned water was observed to be a minimum of 100° F. and a maximum of 135° F. The cooling water, which was returned to the spray pond from the Dubbs unit was found to occasionally reach the temperature of 180° F. No evidence of corrosion has ever been noted in any of the lines, although some slight attack of some of the valves in the cooling water line did indicate the presence of some active corrosion. Considerable carbonate scale was reported as being deposited in the lines, returning from the Dubbs unit to the spray pond and was found present for a distance of about 200 feet from the Dubbs unit towards the pond. It was found impossible to increase the volume of water flowing through these coils in order to lower the temperature below that of 180° F. Frequent inspections of the open condensers were required and maintenance costs were quite high, due to the necessity for periodic cleanings. The vapor cooled by the condensers had a temperature of approximately 630 to 560° F., as an average. Table 7 shows the volumes of water delivered for various cooling purposes, together with the temperature rise and the approximate heat load.

A study of the conditions clearly indicates that the existing difficulties experienced with this water, were a result of the break-down of calcium bicarbonate, under the temperature encountered in the condenser, this break-down taking place in accordance with reaction 1, in Table 8.

In order to prevent such a break-down as this, it is necessary to either eliminate the bicarbonate ions, the calcium ions, or both, and at the same time, refrain from introducing any material that would in itself deposit or permit deposits of other impurities to form from solution. A study of the best possible method indicates that any one of these three approaches to the problem might be employed and the final solution to the problem will be dictated by the economics as well as the results that are likely to be obtained from the treatment in question. The bicarbonate ions can be eliminated through the introduction of a mineral acid, the cheapest of which is sulfuric acid. The reaction taking place under this form of treatment is in accordance with reaction No. 2 in Table 8. The calcium ions as well as the magnesium ions can be eliminated by Zeolite treatment through the medium of base exchange, the calcium and magnesium being replaced by sodium, in the base exchange process. This is illustrated in reaction No. 3 in the table.

Both the calcium and bicarbonate ions can also be eliminated by lime treatment, resulting in the precipitation of calcium carbonate which takes place in accordance with reaction No. 4 in the table.

In giving consideration to the adoption of any particular method, it is necessary to carefully consider the resulting products of the reaction as well as the concentrations that will result under the proposed system. It is always safe to consider the concentrations considerably higher than actually experienced and to introduce this as a safety factor. Furthermore, any proposed treatment must not overlook the possibility of increased corrosive action and should also provide a preventative measure to eliminate the possibility of any interlocking crystalline deposits which might result.

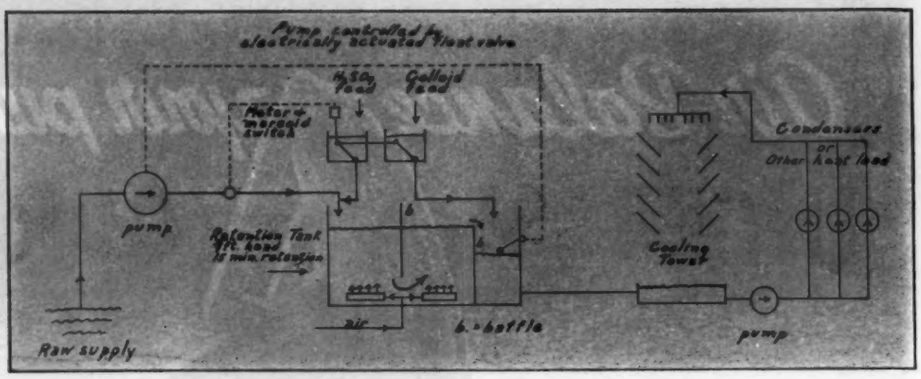


Fig. 3—Cooling-water treatment which employs sulfuric-acid-aeration-reaction colloids

TABLE 3

Calcium oxide as CaO	49 79
Magnesium oxide as MgO	2 24
Iron and aluminum oxide as R_2O_3	0 82
Organic matter and coal oil	6 05
Carbon dioxide as CO_2	39 00
Sulfur trioxide as SO_3	1 29
Silica as SiO_2	0 15
Thickness—½" to 3"	

TABLE 1—COMMON IMPURITIES IN WATER AND POSSIBLE EFFECT WHEN USED FOR BOILER FEED PURPOSES

Constituent—	Chemical formula	Principal source	Possible effect when present in boiler waters
Suspended solids		Surface drainage Trade waste	Priming, foaming, sludge or scale
Silica	$Si O_3$	Mineral deposits	Scale
Calcium carbonate	$CaCO_3$	Mineral deposits	Scale
Calcium bicarbonate	$Ca (H CO_3)_2$	Mineral deposits	Scale
Calcium sulfate	$Ca SO_4$	Mineral deposits	Scale, corrosion
Calcium chloride	$Ca Cl_2$	Mineral deposits	Scale
Magnesium carbonate	$Mg CO_3$	Mineral deposits	Scale
Magnesium bicarbonate	$Mg (H CO_3)_2$	Mineral deposits	Scale
Magnesium chloride	$Mg Cl_2$	Mineral deposits	Scale, corrosion
Free acids	$H Cl, H_2 SO_4$	Mine drainage Trade waste	Corrosion
Sodium chloride	Na Cl	Sewage, trade waste mineral deposits	Inert, but may be corrosive under some conditions
Sodium carbonate	$Na_2 CO_3$	Mineral deposits	Priming, foaming, embrittlement
Sodium bicarbonate	$Na H CO_3$	Mineral deposits	Priming, foaming, embrittlement
Carbonic acid	H_2CO_3	Absorption from air mineral deposits and decomposition of organic matter	
Oxygen	O_2	Absorption from air	Corrosion
Grease and oil		Trade waste	Corrosion, deposits, foaming, priming
Organic matter and sewage		Domestic and trade wastes	Corrosion, deposits, foaming, priming

From "Boiler Feed Water Purification," by S. T. Powell.

Acid Treatment

In the reaction ensuing from the introduction of sulfuric acid, the bicarbonate ion is destroyed and replaced with the sulfate ion, carbon dioxide being liberated in the process. Calcium sulfate being far more soluble than calcium carbonate, greater concentrations of this product can be carried without experiencing difficulty from the

TABLE 2—ANALYSIS OF RAW WATER (Monthly composite samples)

BOILER FEED WATER UNTREATED

November, 1935, to November, 1936

(All values reported in parts per million)

	Nov., 1935	Dec., 1935	Jan., 1936	Feb., 1936	Mar., 1936	Apr., 1936	May, 1936	June, 1936	July, 1936	Aug., 1936	Sept., 1936	Oct., 1936	Max. 1936	Min. 1936	Avg. 1936
Silica	14	13	14	21	15	16	13	16	19	16	18	14	21	13	16
Iron oxide and alumina	2	2	2	7	9	3	4	6	3	2	10	5	10	2	5
Calcium	113	118	128	137	125	133	128	116	158	179	138	132	179	113	134
Magnesium	28	30	30	32	31	34	28	30	34	39	36	16	39	16	31
Sodium	381	392	390	405	437	493	479	335	315	363	439	426	493	315	405
Bicarbonate	239	248	253	283	259	253	244	232	249	241	216	187	283	187	242
Carbonate															
Chloride	627	644	651	644	710	813	763	474	483	658	663	636	813	474	649
Hydroxide															
Sulfate	143	150	160	179	170	182	191	272	321	360	321	260	360	143	217
Volatile and organic matter	51	53	50	50	50	50	56	30	34	20	20	20	56	20	40
Total solids by analysis	1,599	1,649	1,678	1,778	1,806	1,977	1,906	1,511	1,616	1,778	1,861	1,606	1,977	1,511	1,738
Total solids evaporation	1,432	1,595	1,590	1,606	1,688	1,841	1,816	1,385	1,531	1,734	1,805	1,692	1,841	1,385	1,643
Hardness as $CaCO_3$	400	415	443	474	440	472	435	413	534	607	493	396	607	396	460

product being thrown out of solution and deposited upon heat exchange surfaces.

Figure 2 illustrates the comparative solubility of the various crystalline forms of calcium sulfate and calcium carbonate. It is readily apparent that all forms of calcium sulfate possess far greater solubility than any form of calcium carbonate.

For acid treatment to be successful, it is necessary that opportunity be afforded for the release of the carbon dioxide liberated in this reaction and a small aeration chamber should therefore be provided for this purpose. Figure 3 illustrates a typical flow sheet of an acid treating system of this character.

It would not be desirable to eliminate all of the bicarbonate content as the excess acid over and above that which might be necessary to release the calcium bicarbonate would result in a sharp drop in the pH value, giving rise to the opportunity for corrosion. In the case in hand, sufficient sulfuric acid should be added to leave an average alkalinity of the make-up water, of 40 p.p.m. expressed as calcium carbonate. The present average alkalinity, expressed as calcium carbonate, is equivalent to 200 p.p.m. and would require sufficient acid to neutralize 160 p.p.m. of alkalinity. This would require 160 p.p.m. of sulfuric acid equivalent to 1.3 pounds of commercial acid, per 1,000 gallons of make-up water introduced. To avoid some of the complexities of the entire system, the figures which follow are all based on one particular unit of the described system, namely—the treatment of 720,000 gallons of make-up water per day, equivalent to 500 gallons per minute. To deal with this quantity of make-up water, 960 pounds of acid would be required per day.

Figuring a cost of 1 cent per pound for the acid, the total cost would be $9.60 per day, or 1.3 cents per 1,000 gallons of make-up water. The acid should be fed to the make-up water proportionately and a proportional type of feeder, actuated by a line meter can be procured for an investment cost of approximately $250 to $275.

Table 9 will illustrate the changes in the chemical composition that will be effected by the acid treatment and will also show concentrations to be expected in the circulating system under this method of control. Calculating all of the calcium ions present as calcium sulfate, it is found to be equivalent to a total of 1,140 p.p.m. in the circulating water. As the solubility of calcium sulfate, under the temperatures experienced in these units, is approximately 1,700 p.p.m., there would be little tendency for calcium sulfate to deposit. Calculating the silica concentration to calcium silicate, we arrive at an equivalent of 61 p.p.m. the solubility of which, at the temperatures encountered, is approximately 90 p.p.m. again allowing an ample factor of safety. It is at once apparent, however, that it would not be possible to concentrate the water in the unit much higher than indicated, without some softening action. Magnesium silicate is quite insoluble, and there will be some tendency for this to deposit from solution, unless some steps are taken to prevent such deposition. Dissolved oxygen would also be present to some extent, which would also have a tendency to promote corrosion, unless some steps were taken for subsequent treatment. Some residual alkalinity must also be carried. This is provided for to the extent of 123 p.p.m. There would still be some tendency for this residual alkalinity to break down, unless an inhibiting agent were present. For the subsequent treatment of this water, reactive organic colloids can be employed, to prevent such action and should be fed to the system at the rate of 0.1 pound per 1,000 gallons of make-up water introduced. These colloids will serve to disperse any calcium that might have a tendency to leave solution and prevent the interlocking of any crystals so formed in the heating unit. The colloids can be fed by a proportioning device similar to that used for the acid, merely by making an extension of the electromagnetic proportioner. The feed of the colloids, however, should be to the effluent water from the aeration chamber and into the surge tank going directly to the heating load. The equipment required for such proportional feeding, will not amount to any more than $100 additional, making the total cost of feeding equipment approximately $350 to $375.

Through the introduction of the organic reactive colloids, there will actually be a reduction in the hardness content of the circulating water as well as some reduction in the silica content, resulting in the formation of dispersed colloidal gel. The total cost per 1,000 gallons of make-up water treated under this system, will be 3.23 cents per 1,000 gallons.

Lime Pretreatment

Let us consider next, the effects of this water by line pretreatment, results to be expected, the cost of treatment and the cost of equipment. The precipitation of calcium carbonate, resulting by the addition of lime, requires 80 p.p.m. of hydrated lime, for each 100 p.p.m. of carbonate hardness. For the water under consideration, this would theoretically require 1.33 pounds per 1,000 gallons. These calculations have been made from a theoretical standpoint to illustrate the principle involved and do not represent the quantities that would be actually required in practice. The analysis shown for the lime treated water in Table 9, is also entirely from a theoretical standpoint, as it is based on complete precipitation of the carbonate hardness with no allowance for the precipitation of the magnesium content. It is impossible to treat, in practice, water for the removal of carbonate hardness alone, without also removing a portion of the magnesium and in addition, it is necessary to employ excess quantities over and above theoretical, to force reactions to completion. The following figures are therefore lower than can actually be obtained in practice.

Calculating hydrated lime at approximately 1 cent per pound we arrive at a chemical cost of 1.33 cents per 1,000 gallons for the lime alone. To

(Continued on Page 69)

TABLE 4—COOLING WATER DISTRIBUTION

Water returned to pond through sprays	8,800	g.p.m.	(130°F.)
Loss of water through spraying (evaporation and windage)	880	g.p.m.	(calc. as 10%)
Net water returned to pond by sprays 8,800—880=	7,920	g.p.m.	(98°F.)
Make up from wells and mine 540+350+800	1,690	g.p.m.	(65°F.)
Water to cooling service	8,420	g.p.m.	(96°F.)
Water to other service (incl. B. Hse.)	370	g.p.m.	(96°F.)
Water to sewer, ditches, losses	680	g.p.m.	(130°F.)
Total water to refinery (8,420+370+680)=	9,470	g.p.m.	(96°F.)
Water not accounted for—other losses (9,470—8,800)=	670	g.p.m.	

TABLE 5—DAILY AVERAGE OF COOLING WATER IN 1,000 GALLONS

Received from and delivered to pond:	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Topping	8,700	9,000	7,550	8,180	8,580	8,900	9,100	9,140	8,900	8,880
Dubbs, E to H	185	500	400	554	580	628	377	410	330	374
Dubbs, J to M	415	500	519	677	586	618	410	462	374	457
Total from stills	9,300	10,000	8,469	9,411	9,746	10,146	9,887	10,012	9,604	9,711
Well No. 1	715	800	1,286	1,200	790	636	1,180	1,130	1,230	1,210
Well No. 2	1,800	1,800	1,144	1,150	1,060	1,150	1,130	1,150	1,150	1,184
	11,815	12,600	10,899	11,761	11,596	11,932	12,197	12,292	11,984	12,105
Taken from pond and pumped to:										
Topping	9,160	9,400	8,380	9,100	9,020	9,330	9,580	9,620	9,040	9,320
Dubbs, E to H	800	800	687	800	800	800	800	800	800	800
Dubbs, J to M	915	895	893	964	800	796	867	918	910	980
Stabilizer No. 2	350	350	328	350	350	350	350	350	350	350
Total to cooling	11,225	11,445	10,288	11,214	10,970	11,276	11,597	11,688	11,100	11,450
Boiler house	300	300	300	300	300	300	300	300	300	300
Waste	300	300	300	300	300	300	300	300	300	300
	11,825	12,045	10,888	11,814	11,570	11,876	12,197	12,288	11,700	12,050

TABLE 6—AVERAGE TEMPERATURE OF SPRAY POND AND RETURNS

Min.	Jan.—temp. water being returned to pond 90° F., temp. of pond 73° F.
	Mar.—temp. water being returned to pond 100° F., temp. of pond 75° F.
	Apr.—temp. water being returned to pond 108° F., temp. of pond 83° F.
	July—temp. water being returned to pond 118° F., temp. of pond 95° F.
Max.	Aug.—temp. water being returned to pond 123° F., temp. of pond 97° F.
	Nov.—temp. water being returned to pond 105° F., temp. of pond 78° F.

TABLE 7—COOLING WATER HEAT LOAD

Unit—	Approx. water consumption g.p.m.	Approx. temp. rise	Approx. heat load B.t.u./hr.
Topping No. A	1,000	30	15,000,000
Topping No. B	1,590	30	24,000,000
Topping No. C	1,590	30	24,000,000
Topping No. D	1,830	26	24,000,000
Topping total	6,010	Aver. 29	87,000,000
Dubbs No. E	100	80	4,000,000
Dubbs No. F	175	80	7,000,000
Dubbs No. G	325	40	6,500,000
Dubbs No. H	510	35	9,000,000
Dubbs No. J	100	80	4,000,000
Dubbs No. K	100	80	4,000,000
Dubbs No. L	100	80	4,000,000
Dubbs No. M	100	Aver. 80	4,000,000
Cracking total	1,510	Aver. 56	42,500,000
Gas plants, known as recovery plant also.			
Stabilizer No.	230	22	2,500,000
Gas system	430	30	6,500,000
			9,000,000
Total (processing units)	*8,420	Aver. 33	138,500,000

*Gallons per minute.

TABLE 8

(1) $Ca(HCO_3)_2 + \Delta = CaCO_3 + H_2O + CO_2$
(2) $Ca(HCO_3)_2 + H_2SO_4 = CaCO_4 + 2CO_2 + 2H_2O$
(3) $Ca(HCO_3)_2 + Na_2Z = 2NaHCO_3 + CaZ$
(4) $Ca(HCO_3)_2 + Ca(OH)_2 = 2CaCO_3 + 2H_2O$

TABLE 9—COMPOSITE RAW WATER

(Results in p.p.m.)

		Max.	Min.	Aver.	A	B	C	D
Silica	(SiO_2)	21	13	16	16	16	16	49
Iron and aluminum oxide	(R_2O_3)	10	2	5				
Calcium	(Ca)	179	113	134	134	54	0	335
Magnesium	(Mg)	39	16	31	31	31	0	77
Sodium	(Na)	493	315	405	405	405	617	1,012
Bicarbonate	(HCO_3)	283	187	242	49	0	49	123
Carbonate	(CO_3)	0	0	0	0	0	0	0
Hydrate	(OH)	0	0	0	0	0	0	0
Chloride	(Cl)	813	474	649	649	649	649	1,620
Sulfates	(SO_4)	360	143	217	370	217	217	925
Volatile and organic matter		56	20	40				
Hardness as	$CaCO_3$	607	396	460	460	264	0	1,159

A—Expected analysis after sulfuric acid treatment.
B—Expected analysis after lime treatment. (See text.)
C—Expected analysis after zeolite treatment.
D—Expected analysis of circulated water, acid treated, under normal concentrations in the system.

Oil Development in the Central Part of the Illinois Basin

By R. W. McILVAIN, JR.
Pure Oil Co.

Since the discovery of oil in the deep part of the Illinois Basin in February, 1937, most of the development has been in Clay, Richland, and Wayne counties. The scope of this paper includes Clay, Edwards, Hamilton, Richland, Wabash, Wayne, and White counties, and as hereafter used the term "basin" is restricted to mean this area.

Most of the oil produced to date in the basin has been from the McClosky oolitic limestone, which occurs at a depth of 3,000 feet and is a part of the Ste. Genevieve formation in the Lower Mississippian series. The pay zone is from 3 to 20 feet thick and has a porosity of 15 to 25 per cent with a permeability varying from 5 to 5,000 millidarcys. The largest producers in this formation have made approximately 2,600 bbls. per day. This lime production has a rapid initial decline, which becomes more gradual with age. Based on information available from the old Lawrenceville and Bridgeport fields to the east, it is expected that the wells will be small pumpers with a long life. Porosity in the lime is erratic, resulting in dry holes within the productive area. The Cypress and Aux Vases sandstones of the Chester series, which lie above the McClosky, have shown oil in a number of wells. Sand thicknesses from 10 to 30 feet have been penetrated. These horizons are expected to be producers, but so far have not been tested sufficiently to determine their extent or size of wells.

Producing Areas

Until very recently most of the drilling activity was 2 to 10 miles south and east of Clay City in Clay County. The basin discovery well was drilled in this field. A major portion of the present development is in and around the town of Noble in Richland County. Several good wells have been found 2½ miles south of Noble and one small well, 6 miles to the east. Production has, also, been secured 2 miles north of Olney in Richland County.

There is some small production 2 miles south and east of the town of Cisne in Wayne County. The porosity in that area, so far, has not been as favorable as elsewhere. One small producer has been completed near Rinard, which is 3½ miles north of Cisne. There is a well 7½ miles south and west of Fairfield in Wayne County which had an initial production of 300 bbls. in the McClosky lime. It was shut in, due to lack of storage, after being produced a short time. The generalized log, Figure 1, shows various key formations and their representative depths.

During the first stages of development a 10-acre spacing pattern was used, which has subsequently been changed to a 20-acre pattern. There is no active water drive in the McClosky, and, to date, very few of the wells have shown water, although a small amount may be expected in the future. In general, the gas, oil, and water are not corrosive.

Estimates of actual proven acreage vary from 10,000 to 20,000 acres, however, the fields are so new that no reliable estimate can be made at this time. Some 600,000 acres are under lease in the basin and it is believed that with this much unproven acreage, there will be considerable activity in the area for some time.

As of March 1, 240 wells have been drilled representing a total drilled footage of 722,000 feet.

A.P.I.—Presented before Eastern District of Division of Production, Pittsburgh, Pa., April 14-15

One hundred eighty-two wells were producers, representing 534,492 feet drilled for a total initial production of 97,320 bbls. per day. Most of the oil produced in the basin is now handled by pipe lines.

Prior to the recently discovery, cable tools were used exclusively in the basin but they are extremely slow and expensive. A number of sands are encountered in the area and those not containing oil have a full head of salt water. Most of the shales encountered are "cavey," particularly in the presence of water.

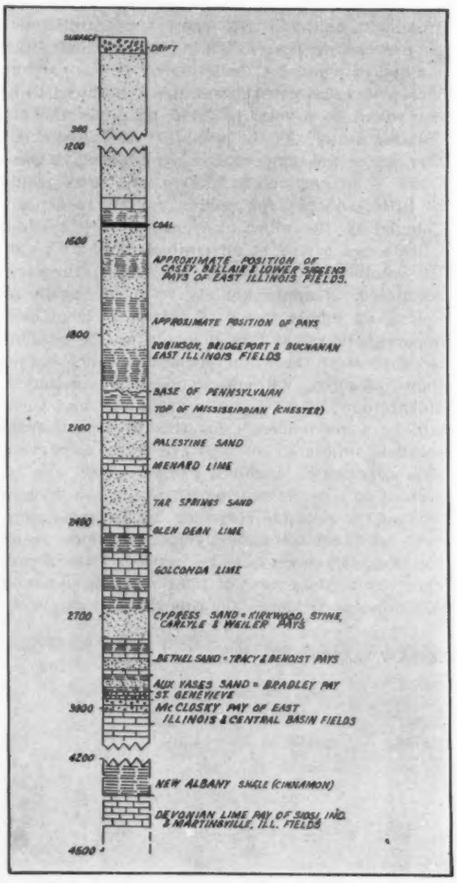


Fig. 1—Generalized log of Noble area, Richland County, Illinois

With this method, a great deal of underreaming is necessary, as well as "carrying the casing," sometimes using pup joints as short as 2 feet in length, and a total of five or six strings of casing by the time a depth of 3,000 feet is reached. The practice of lubricating the various strings of casing with commercial clay has proved effective in landing the casing at the desired depth.

Rotary Drilling

After the completion of the cable tool discovery wells, rotary rigs were moved into the area in the belief that time and money could be saved by using this drilling method. At that time no natural gas was available and steam rigs used crude oil or coal for fuel. Combination gas and semi-diesel rigs used distillates until sufficient gas was available for fuel.

Water for drilling operations was, and still is, a problem in that the presence of salt water some 200 feet below the surface of the ground eliminates the use of deep water wells for furnishing drilling water. These operators not having water systems located on streams or rivers are forced to haul water by truck, and at times, due to road conditions and bad weather, this is not dependable.

Rock bits are used exclusively as the formations are so hard it is impossible to use drag bits. Six-inch drill pipe and one or two 30-foot drill collars are used to set surface pipe. Four and one-half inch drill pipe and one or two 30-foot drill collars are used below the surface pipe to the total depth. The most recent practice has been to use 3½-inch drill pipe and one to three drill collars to drill a smaller hole than when using 4½-inch.

Roller reamers are not absolutely necessary although it is possible that the cost of reamers is more than paid for through the saving in rock bits, and the assurance that the casing will always go to the casing point without having to pull the casing and ream the hole. In addition, reamers are an added protection against crooked holes. However, this is not a big problem as the holes do not average more than 1 to 1½ degrees off vertical.

When using 4½-inch drill pipe, approximately 18 rock bits are used per well. The use of 3½-inch drill pipe is so recent that it is not definitely known how many bits will be necessary, although it is believed from 13 to 15 bits per well will be used.

Sand and lime formations wear the drill pipe and particularly tool joints, the estimated life of the latter being from 30,000 to 40,000 feet. The development is so new that it has not been definitely proven whether or not it will be economical to replace tool joints on the drill pipe. Drill pipe protectors in open hole have been used in an effort to reduce the tool joint wear, but it was found impossible to keep the protectors on the drill pipe.

Gas and semi-diesel or steam-saving rigs are the most desirable due to the scarcity of water. The power rigs have two engines, each ranging from 130 to 180 horsepower. Each rig has only one

pump, varying in size from 6¾ by 12 to 7¼ to 14-inch. Most of the drawworks used are good for 4,000 to 4,500 feet. If this depth drilling ever becomes necessary in the basin, it will be necessary to add another pump and engine to each rig. The power transmission arrangement is such that either or both of the engines can drive the pump or drawworks separately or together. All of the equipment is unitized and skid mounted wherever possible. One blowout preventer and master gate are used on most of the wells.

Both 96- and 122-foot derrick are used, the former being the most popular. Most of the derrick corners are made of concrete and with few exceptions, substructures are not used.

Few of the formations encountered have mud making properties and for this reason, it is necessary to pay more attention to the mud than in other shallow areas. If a well were drilled to 3,000 feet without the use of artificial clay, the mud would weigh 9 to 9½ pounds per gallon, and have a viscosity of 33 or 34 seconds A.P.I. In general, very little commercial clay is used above 2,500 feet. At this point the viscosity is generally increased to a minimum of 40 seconds and mud of this viscosity has sufficient jell strength to keep sand and other solids from settling out of suspension. This characteristic is always desirable in the event of fishing jobs, but the jell strength is watched primarily in the hope that good mud will increase the ultimate recovery of casing when the wells are abandoned. As yet, no local clays have been found which are satisfactory for making drilling mud. The pits are usually dug by bulldozers or very small drag lines.

Casing Program

The following casing programs are now being used:

CASING PROGRAM NO. 1

Casing size O.D.	Setting depth	Weight per ft.	Grade	Sacks cement used	Diameter hole casing set in
10¾	230	32-75	C	50	13¾
7	2,940	22	C	50-150	8¾

CASING PROGRAM NO. 2

9⅝	230	29.35	C	50	12¼
6	2,940	17	C	50-150	8¾

CASING PROGRAM NO. 3

9⅝	230	29.35	C	50	12¼
5½	2,940	14	C	50-150	7⅞

Casing program No. 1 was the first used. In the first few holes 800 feet of surface pipe was set until it was demonstrated that the shallow formations would stand up. Casing programs Nos. 2 and 3 are the result of an attempt to reduce the well cost. It is believed that the 5½-inch O.D. casing will be the most generally used in the future. It is, also, possible that when setting 5½-inch casing that the hole size will be still further reduced to a minimum of 6¾ inches.

In order to save additional time on a well in a proven area, it has been found feasible to reduce the hole at the casing seat and drill rather than core the pay, and quite accurate production estimates can be made if good samples are caught and by studying drilling times in the pay.

Portable spudding machines have been used on some wells to drill into the pay after the oil string has been set. So far, there has been no noticeable difference in the production characteristics of a well when drilled in with a spudder or rotary rig. however, this only applies to those wells in which the drilling fluid was in good condition before the pay was drilled.

Small, portable, truck-mounted rotary outfits have been used with varying degrees of success. It is reasonable to believe that rig sizes will eventually be reduced in proportion to the size of hole most generally drilled, but there is some question as to the practicability of mounting the unit on one truck or trailer due to the severe road conditions that are experienced in bad weather.

The 3,000-foot wells are drilled in a total time of 14 to 20 days, including rigging up, drilling the well, and tearing down. The wells, including tubing and christmastree connections, cost from $17,000 to $18,500.

Pumping Equipment

The combination of small pumps, five-eighths inch sucker-rods, and 2-inch tubing is most common, but some 2½-inch tubing is used. From 54- to 74-inch maximum stroke individual pumping units are used where lease or other conditions do not justify a power. The polish-rod rating of the units varys from 14,000 to 25,000 pounds. One to three wells have been twinned on the units. Most of the powers are 100 horsepower, 36-inch stroke, geared powers, pumping a maximum of 16 wells. All sizes of tanks have been used, the trend being to 500's and welded 210-bbl. tanks. Where the production is not too large, it is believed welded tanks will be the most economical.

The use of acid has been worthwhile and in most cases a treatment will pay for itself within a maximum of 10 days. The wells have been treated in from one to three stages, ranging from 500 to 5,000 gallons. Where the porosity is good, a one-stage treatment of from 3,000 to 5,000 gallons of acid is preferable. When the pay is tight a two- or three-stage treatment will give the best results. The McClosky lime is 100 per cent soluble in acid and the best results from acid treatment have been obtained by using 15 per cent acid and swabbing the acid out of the hole immediately after it is put in the well. In spite of the use of standard retarders, the reaction of the acid on the lime is so fast that no advantage is gained by increasing the time the acid is left in the well.

It has been said that every oil field has operating problems which characterizes it from other fields and that particular problem in the basin is mud. Of course, all oil fields are muddy in wet weather but it is generally conceded by those who have been in Seminole, Drumright, Gulf Coast, East Texas, etc., that the field road conditions in the basin are the worst they have ever seen. This is largely due to the fact that there is 4 to 5 feet of unconsolidated drift on top of a clay hard-pan which does not readily permit the ground to drain. The mud is sticky, slippery, and "balls up" in the first place, and the hard-pan below accounts for the fact that there is no apparent bottom to the mud. In extremely wet weather, conventional tandem, and four-wheel-drive trucks, trailers, or Athy wagons are practically useless off the highways. During these times all equipment is moved on "mud sleds" which are winched by two 90 hp. caterpillar tractors to each mud sled. . . .

CORRECTION OF WATER

(Continued from Page 65)

aid in the coagulation and settling of the precipitate, 0.125 pound of sodium aluminate should be added, per 1,000 gallons, which at a cost of 7 cents per pound gives an additional chemical cost of 0.87 cent per 1,000 gallons. Allowing four hours' settling time, a tank of 120,000 gallons capacity would be required. In addition to this, two filters—8 feet in diameter by 12 feet long (horizontal type) would be required to give a total filtering area of 180 square feet. In addition to this, a subsequent treatment of reactive colloids would still be required in exactly the same quantities equivalent to those required under the acid treatment to prevent further precipitation from solution of the residual calcium carbonate as the solubility of this salt decreases with increase in temperature. The total cost of treatment under this system, would be 4.10 cents per 1,000 gallons of make-up water, considerably higher than the cost of acid treatment, as outlined previously. In addition to this, a large capital expenditure would be required for the settling tank and filters. It is plainly evident that this method cannot compete on an economic basis with the acid treatment, described previously.

Zeolite Treatment

In considering the treatment of this water with Zeolites, we must first take into consideration the average hardness of 460 p.p.m. equivalent to 27 grains per gallon. Considering either the natural or artificial Zeolites, 0.5 pound of salt (sodium chloride), is required per grain of hardness, per 1,000 gallons of water to be softened. With a water of 27-grain hardness, 13.5 pounds of salt would be required for each 1,000 gallons treated. With a salt cost of approximately $12 per ton, equivalent to 0.6 cent per pound, the salt cost alone on this water would be 8.1 cents per 1,000 gallons and on the treatment of 720,000 gallons per day of make-up water, would amount to $58.20 per day.

Estimating one regeneration per day, the Zeolite capacity would be 720,000 times 27 grains or 19,500,000 grains of hardness and figuring on green sand at 2,700 grains per cubic foot would require 7,200 cubic feet of green sand, which at $4 per cubic foot would entail a cost of $28,800 for the green sand alone.

It is doubtful that this water could be treated by means of a Zeolite softener without prefiltration. Such equipment for filtration and the Zeolite unit itself, excluding the cost of the green sand, would involve an additional expenditure of from $7,000 to $10,000, making a total capital investment of between $36,000 and $39,000. In as much as the salt cost alone is more than twice the total cost under the acid treatment, to say nothing of the investment required for equipment, the Zeolite method of treating the water in this particular case, can be dismissed from consideration. Please understand that we are considering in this instance, only the water in question and it is highly probable that in other waters, where the character differs from the example in question, that Zeolite treatment may prove the one most economical to use. . . .

Table 9 shows the average analysis that could be expected by lime pretreatment and Zeolite treatment, as well as the average analysis to be expected by treating this water with sulfuric acid.

A study of the conditions present in this particular case, reveals ample justification for the installation of the sulfuric acid method of treatment. Not only is it capable of producing satisfactory results, but such can be accomplished with a very low capital expenditure. The part played by the reactive colloids is of considerable importance to the success of this system. As a matter of fact, similar systems to this have been installed and have been placed in successful operation in several plants using a water of this character.

At one plant, where a system of this type was first installed in one unit, results were so gratifying after months of operation, the plant superintendent requested an extension to include all units in the entire plant. . . .

In closing, I wish to repeat the assertion made formerly, namely that any method of treatment of cooling waters or boiler feed waters depends upon a thorough and competent study of the question in hand and should be taken into consideration only after studying carefully an analysis of the water, a survey of the plant conditions, resulting in a final adoption of that process best suited to the individual requirements.

The author wishes to acknowledge the assistance of R. T. Sheen and J. J. Maguire, of the staff of W. H. and L. D. Betz, in assembling the data in the preparation of this paper.

Economics of Cleaning Diesel Engine Fuels by Centrifuge

By H. O. SEARS
Alliger & Sears Co.

The cleaning of diesel engine fuel by centrifuge is a subject around which there has been much discussion for the past few years. Progress in equipping plants with machines for this purpose has been slow, due primarily to lack of information on the exact savings to be made possible. It has been known that economies were probable but no exact figures were available for evidence.

In order to help remedy this condition, a major pipe line company has kept very exact records for the past two and a half years. They have five stations with equipment identical in every respect except one. Two of the stations are equipped with fuel oil centrifuges and three are not. The engines in these stations are slow speed, air injection, four-cycle engines which could reasonably be expected to show less trouble from dirty fuel than any other type. This made the tests important and any results shown conservative, from a standpoint of making estimates on possible savings in other plants. For these reasons, the figures shown by the tests are worthy of careful study.

It was expected that results would show up in: Exhaust valves, fuel valves, fuel pump, liner wear, lube oil contamination and fuel consumption.

This breaks down into three principal divisions: (A) Savings on short term or frequently recurring maintenance costs. (B) Savings on long-term costs. (C) Fuel and lube oil economies. It is thought advisable to present test results on this basis.

A. It is the policy of the pipe line company mentioned above to check exhaust valves and fuel valves every 1,500 hours of operation, which averages about three times yearly. It has been found by averaging the time spent in reconditioning these valves that on those engines where the fuel is not centrifuged it requires two hours on exhaust valves and one hour on fuel valves. On the engines running on centrifugal fuel, the time required is one-half hour on exhaust valves and one-third hour on fuel valves, thus effecting a saving of six and one-half man hours per year per cylinder in operation. In addition, there is, of course, the proportionately increased time of operation before valves and valve seats must be replaced.

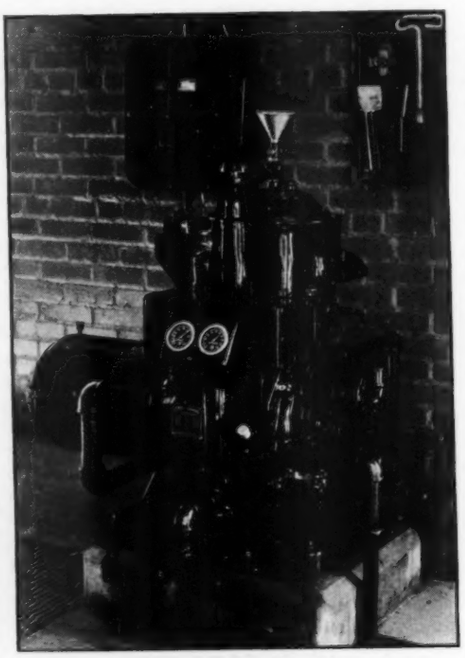
These results have been roughly confirmed in other plants where, however, no means of direct comparison was possible and figures had to be built up from a verbal statement of the operator's opinion.

The company has found it necessary to replace fuel pump plungers and valves annually, and fuel pump packing twice yearly. In the two and one-half years the two stations have been operating on centrifugal fuel, no fuel pump plungers or valves have been replaced and only one fuel pump packing replacement has been necessary. The plungers and valves are still in excellent condition.

B. Under long-term maintenance costs affected by fuel cleanliness we included liners and rings. It was found in all cases that in the engines operating on centrifuge fuel the rings had accumulated less carbon and cases of stuck rings were much less frequent. Liner wear was reduced approximately 50 per cent. This was expected as it had been measured in other cases and found that within reasonable limits this is always the case.

C. An average was taken of fuel consumption in the five stations mentioned above, all operating on as nearly identical load conditions as could be possible and it was found that the engines in the two stations operating fuel centrifuges had an average fuel economy of .415 pound per horsepower hour and the others an economy of .434 pound per horsepower hour. This figures out to be a saving of 395 bbls. of fuel per station per year. This figure is confirmed almost exactly by the station records of crude oil drawn from the line for engine fuel.

One of the two stations operating fuel centrifuges handles its lubricating oil by the batch



Fuel oil centrifuge operating at a main line pipe line station

method. Before installation of the fuel machine it had been customary to clean the lubricating oil each 100 hours of engine operation, at which times 1¾ pounds of carbon and foreign matter were removed. If allowed to run 150 hours, 3½ pounds of carbon were removed. After installation of the fuel machine, the engine was allowed 140 hours operation and 1 pound of carbon was removed. In addition, one engine used 22 gallons less lubricating oil in the first six months of operation on clean oil than it did the preceding six months. Other engines show similar results.

This shows a very accurate picture of operation of engines generally conceded to have the least need of clean fuel. Most engines being sold now are mechanical injection and run at higher speeds, thus increasing materially their sensitiveness to any dirt in the fuel. Added to this is the fact that the fuel available to the average industrial or municipal plant has a greater quantity of foreign matter than the pipe line crude used by the above company. This oil contains from .2 to .5 per cent foreign matter, depending on its source. After centrifuging, it ranges from .02 to .03 per cent. An analysis of the dirt removed follows:

	Per cent
Oil—resin and wax	16.50
Water	79.50
Acid insoluble ash	.04
Iron and aluminum oxides	.19
Soluble salts	3.17
Sulfur	.11
Errors	.39
Total	100.00

Most commercial fuels would show far greater quantities of salt, sulphur and ash, all of which are most injurious to the engine fuel system, and the removal of which would show a greater profit than the above figures. An example of this was shown in a Kansas industrial engine plant where exhaust valves had to be removed every 100 hours. Examination of the fuel showed large quantities of salt. A centrifuge was placed in operation and the valves are now removed every six months. It is a safe bet that wherever exhaust valves are pitted and rapid fuel pump wear is experienced that a centrifuge will stop the trouble by removing the salt, water, and insoluble foreign matter. In two-cycle engines the accumulation of carbon around the exhaust ports is greatly reduced.

A brief summation of the benefits of centrifuging fuel oil follows. Not all of these items will necessarily be found in any one installation, their occurrence depending on the type of engine and quality of fuel used: (1) Longer life of exhaust valves. (2) Longer life of injection nozzles. (3) Lower fuel pump wear. (4) Reduced liner and ring wear. (5) Increased fuel economy. (6) Less lube oil contamination. (7) Reduced carbon deposit. (8) Successful use of heavier, lower-priced fuel. (9) More even loading of cylinders. (10) Lower operating temperatures.

Bromine Plant Handles Large Volume of Brine Annually

Unrecovered chemicals worth $136,595,370 at current prices were present in the seawater which passed through the bromine plant of the Ethyl-Dow Chemical Co., at Kure Beach, near Wilmington, N. C., during 1937, according to figures made public by the Ethyl Gasoline Corp. One square mile of ocean 124 feet deep, or 223,968,000,000 pounds of brine, was pumped through the plant in order that several thousand tons of bromine could be extracted. The bromine, first chemical wealth of the sea to be commercially recovered, found its way into the gasoline tanks of millions of motor cars as an ingredient of Ethyl fluid. Remaining chemicals in the brine, comprising precious metals, mineral salts, and other basic substances, flowed back into the ocean by way of the Cape Fear River.

The unrecovered materials included .071 tons of gold, worth $59,700; 2.22 tons of silver, valued at $34,600; and 13.02 tons of copper, amounting to $6,770. Sodium chloride, or common salt, occurred more abundantly than any other substance. The intake of salt totaled 3,005,000 tons, representing $45,100,000.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Casing Programs in Oklahoma Oil Fields

In connection with an engineering paper I am preparing I would like to know the average casing program for wells in Oklahoma City, Fitts and Noble and Logan counties oil fields.—G. M. S.

There are no set casing programs in any field and in fields like Oklahoma City the casing programs have varied as the field was developed so programs published in casing manufacturers' handbooks are no longer representative. This is a very natural development because as the operators become more and more familiar with the field completion methods changed and casing programs were adopted to the later production methods.

The March 11, 1937, issue of The Oil and Gas Journal contains an article on the Fitts pool by K. R. and Maurice Teis and on page 74 you will find a statement about the casing and cementing procedure.

The latest program for casing in Oklahoma City consists of running about 600 feet of 13⅜-inch and 6,400 feet of 7-inch casing. Other wells were completed with 600 feet of 13⅜-inch, 3,500 feet of 9⅝-inch and 6,400 feet of 7-inch.

One casing program was generally followed in Logan and Noble counties last year. It was 400 feet of 13⅜-inch surface string and 5,000 feet of 7-inch 24-pound Grade C flow string.

What Is the Cement "Scab" Method?

In The Oil and Gas Journal of February 17, 1938, page 55, there is a description of well completion in Kettleman Hills, California, field. The item deals with installation of a cement "scab" and flow collar and I would like to have more detailed description of same—R. B. E.

The cement "scab" referred to in the article on page 55 of the February 17 issue is what is known in your country as a "squeeze job."

In the Kettleman Hills field the producing formation is very thick and, as stated, the upper zone contains gas while the oil is lower down in the formation. The hole is drilled through the gas zone and for some distance into the oil bearing portion of the formation.

The casing is run in the usual manner but after it is in place either on bottom of the hole or seated above the oil sand section it is gun perforated in the lower portion of the region where gas and oil zones meet. In as much as this is a very thick section there is ample space to be used for seal to divide these zones. When the lower set of holes have been shot through the casing the gun is raised high enough to be opposite the top section of the seal. The casing is again shot at that point.

With gun perforations in two positions in the casing the tubing is run with a special packer that is set between the upper and lower set of gun holes. Another packer had previously been run to the point below the lower set of holes to close the casing entirely. When the tubing is in place cement is pumped into the space between packers inside the casing and will find escape through the lower set of holes and fill the annular space outside of the casing up to the upper set of holes where it finds relief into the inside of the casing again by running in from the annular space between casing and walls of the well.

With this manner of completion no gas or oil can intermingle behind the casing. The next step is to run tubing with packer set inside the casing opposite the cement seal. The casing is perforated above the cement seal and gas can then enter the annular space between tubing and casing above the packer. The lower end of the tubing is in the oil zone.

Oil enters the bottom of the tubing and gas is permitted to enter the tubing above the packer by the manipulation of the adjustable flow collar which is opened or closed by turning the tubing.

Something of this same kind of completion is shown in cut accompanying an article by T. P. Sanders on page 39 of the April 7 issue of The Oil and Gas Journal.

Production and Reserves of World and U. S. A.

In perusing your Journal I get the following figures partly computed. Since beginning of production (1857) to 1937 (end):

World production of petroleum—31,000,000,000 bbls.
U. S. A. production of petroleum—21,000,000,000 bbls.
World oil reserves end 1937—20,000,000,000 bbls.
U. S. A. oil reserves end 1937—13,000,000,000 bbls.
Are those figures nearly correct?—R. G.

We check those figures as follows:

World's production to end of 1937—31,170,932,102 bbls.

U. S. A. production end of 1937—19,940,619,789 bbls.

World's oil reserves—23,271,527,333 bbls.

U. S. A. oil reserves—12,501,839,546 bbls.

For the world's production figure we added 2,022,487,102 bbls. produced in 1937 to a total of 29,148,445,000 bbls. as reported up to end of 1936. U. S. A. production figures is given in a table on page 108, March 17 issue, The Oil and Gas Journal.

World's oil reserves have been estimated by taking 22,000,000,000 bbls. given by Wallace Pratt in The Oil and Gas Journal, November 4, 1937, page 14, as representing total foreign production plus reserves and deducting foreign total production, or about 11,230,312,213 bbls., leaving 10,769,687,787 bbls. foreign reserves to which the U. S. reserves has been added. For estimated reserves in this country see table on page 108 of The Oil and Gas Journal of March 17.

Papers Presented Before A.A.P.G. Meeting

Can you advise me where I may secure copy of the articles listed in the abstracts of papers presented before the annual meetings of the American Association of Petroleum Geologists and Society of Exploration Geophysicists and published in the March 17 issue of The Oil and Gas Journal.—D. H.

All papers presented before the A.A.P.G. annual meeting held in New Orleans March 15-18 are supposed to be turned over to the papers committee of that association for future publication in the A.A.P.G. Bulletin, and the papers presented before the Society of Exploration Geophysicists are likewise turned over to a committee of that society to be later published in the society's magazine.

To secure copies of any of those papers in advance of publication it would be necessary to secure permission of the committee handling same as well as the author's sanction to release his paper in advance of official publication. The headquarters of the A.A.P.G. is in the Wright Building, Tulsa, and the Society of Exploration Geophysicists has headquarters in Houston and the secretary is H. B. Peacock, 825 Esperson Building, Houston, Tex., and M. M. Slotnick, also of Houston, is editor.

Vacuum as Applied to the Recovery of Oil

Can you advise where we may obtain information on the application of vacuum pumps to oil wells? We are particularly anxious to get a diagram of this application, showing the various connections and pieces of equipment used.—O. B.

While vacuum is still used in some oil fields to aid in the recovery of oil, it is not as generally practiced as it was some years ago. There is not much in the recent literature on this subject, but there are two references we can cite you.

There is a paper entitled "Use and Limitations of Vacuum in the Recovery of Oil," by Ben E. Lindsly, published in the Petroleum Division, Transactions of the A.I.M.E., 1926, pp. 158-176.

Also another reference to this practice by Ben E. Lindsly and W. B. Berwald, entitled "Effect of Vacuum on Oil Wells," in Bulletin 322, U. S. Bureau of Mines, 1930, p. 133. It is probable this bulletin is out of print, but you can make inquiries about that detail by writing to the Superintendent, U. S. Government Printing Office, Washington, D. C.

You should be able to find much of the information you desire in those two articles, and it is hoped that you locate copies of the publications.

Underground Storage of Natural Gas

I desire information about the return of gas to underground formations, that is, dry sands, for the purpose of storage or disposal. I am mainly interested in the disposal of excess gas and not so much concerned with repressuring with gas. Any information you can give me will be appreciated.—G. W.

There is not much in the literature on this subject because it has been learned from past experience that any published statements may cause land owners to form erroneous ideas of the value of their land for storage purposes and lead to claims for bonus out of line with actual value of the land for storage purposes because the land owner has the opinion there is much more residue oil and gas still left in the formation than can be checked by careful tests.

There is a short statement about "Underground Storage" on page 1096 of "Geology of Natural Gas" published by the A. A. P. G.

There is another reference to recycling gas through depleted oil sands on page 251 of "Increasing the Recovery of Petroleum" by W. H. Osgood. While this last reference does not have direct bearing on your problem it still is of some interest, just as some of the statements made in an article by N. M. Hutchinson, Empire Oil and Refining Co., Bartlesville, Oklahoma, on a "Program of Gas and Air Repressuring in Eastern Kansas" published on page 33 of the February 27, 1936, issue of The Oil and Gas Journal.

On page 32 of the Oct. 15, 1936, issue of The Oil and Gas Journal there is a statement made by P. D. Mellon, of the Canadian Western Natural Gas, Light, Heat and Power Co., with offices in Lethbridge, Alberta, Canada. It is stated that more than 8,500,000,000 feet of waste gas from the Turner Valley field had been stored in the Bow Island field since 1930 up to the time the statement was issued. This gas had tended to restore pressures in that field and they had been built up to around 550 pounds in the reservoir. The open space in the reservoir had originally been estimated as covering about 30 square miles but because of edge water encroachment had been reduced to about 16 square miles. This gas was available for natural gas lines serving Calgary and other Canadian cities.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Specifications For Three Grades of Motor Gasoline

What are the standard specifications for the three grades of gasoline now marked, which are designated Third, Regular and Premium Grades?—O. T. C.

There are no standard or official specifications covering the grades of motor gasoline commonly handled by the trade. The foundation specifications, generally recognized in the industry, are those of the federal government, designated VV-G-101a, U. S. Motor gasoline. These are confined to the 10, 50 and 90 per cent distillation temperatures, 167°, 284° and 392° F.; a maximum residue of 2 per cent on distillation; vapor pressure at 100° F., a maximum of 12 pounds; total sulfur, maximum, 0.10 and corrosion, negative. The most used of these requirements is that of sulfur. Gravity, color and octane value are not included in the federal specifications, but are often stressed by the selling agencies.

The Oil and Gas Journal makes an annual inspection of the three grades of motor gasoline sold by 12 important companies. The last was made in January, 1938, the results appearing on page 21 of the March 10, 1938, issue. The table shows the extremes for certain important characteristics from these samples.

EXTREMES FOR MOTOR GASOLINES

	Low	High
Third Grade		
Octane number	48	56
Initial boiling point, °F.	85	104
Endpoint	400	420
Vapor pressure, lbs./sq. in. at 100° F.	5 3	13
Regular Grade		
Octane number	71	73
Initial	86	98
Endpoint	385	418
Vapor pressure	8 8	13
Premium Grade		
Octane number	78	80
Initial	85	95
Endpoint	364	420
Vapor pressure	8 8	12

If the data shown in the table were combined with the other properties above mentioned, a set of specifications may be prepared to serve as a guide when making purchases of each grade.

Naphthalene Used As a Sludge Inhibitor and For Depressing Pourpoint

In the September 23, 1937, issue of The Oil and Gas Journal, Questions on Technology, under Chemicals for the Petroleum Industry, naphthalene was mentioned as a sludge inhibitor and for depressing pourpoint. I would like information as to how this is prepared, quantities used and cost? Assuming the pourpoint on a cracked fuel is 60° F. and 25° F. is desired, what quantity would be required?—B. G. A.

Naphthalene, a coal tar product, is available on the market at the rate of approximately 7 to 10 cents a pound, according to the quantity purchased.

This chemical is soluble in various liquids and may be used as a selective solvent for the extraction of paraffin wax from lubricating stocks. The resulting product would have a much lower pourpoint than the original oil of high wax content. Just how far the pourpoint could be lowered by this method would depend on the details of the operation.

The use of naphthalene as a sludge inhibitor is confined to fuel oils, especially of the diesel type. When used in this way it is usually in the solution form, with a suitable liquid such as naphtha or some organic liquid. As a pourpoint depressor, it is not effective over a wide range and also appears to give better results with some oils than others. It could not produce a lowering of 35° F. as suggested in the question.

In some preparations marketed, the naphthalene is present in the form of a concentrated solution. It may be used in a diesel fuel oil in proportions of the order of 5 to 10 per cent.

The methods for making crude and refined naphthalene are described in the text books on organic chemistry.

Volume of Gas Evolved From a Gallon of Gasoline

What is the quantity of gas that will be produced from a gallon of gasoline? Explain how this volume is derived?—P. E. L.

The quantity of gas that may be evolved from a gallon of gasoline is in most instances an assumed equivalent. It is clear that the quantity of gas or vapor that may be obtained from any hydrocarbon liquid will always depend upon the chemical composition of the liquid. The gasolines now manufactured are complex mixtures of hydrocarbons, as indicated by the varying gravity, say from below 58 degrees A.P.I. to over 80 degrees A.P.I., and the distilling temperatures that may range from the first fraction, starting to distill possibly at 70° F., to the final part boiling at about 437° F.

The first fraction of the volatile hydrocarbon liquids derived from a gasoline by distillation is very volatile, consequently it quickly passes into the vapor form, but the final portions do not change into vapor, except when heated to a relatively high temperature. Unless the vapors from a heavy oil are held at a high temperature, above the boiling point, they will soon condense to the liquid form.

A simple hydrocarbon, such as butane, C_4H_{10}, which is quite easily separated from natural gasoline in the pure form, has fixed properties and therefore a definite weight per gallon of liquid, which will produce a specific volume of gas or vapor at temperatures above its boiling point.

Avogadros hypothesis, a principle universally accepted, is the basis for the pound mol; the molecular weight of any gas, when expressed in pounds, will measure 357 cubic feet at 32° F., or 379 cubic feet at 60° F. Therefore, the molecular weight of butane is 58, so 58 pounds of butane will measure 379 cubic feet at 60° F. The specific gravity of liquid butane is 0.5845, and the weight of a gallon of water is 8.34 pounds, making the weight of a gallon of butane 4.864 pounds. Consequently, one gallon of butane will produce 32.56 cubic feet of gas at 60° F.

If the quantity of each of the several hydrocarbons (Rossini has separated 17) present in a gallon of gasoline is known, it is possible to estimate, in a similar way, the volume of gas to be obtained. For estimating purposes, 35 cubic feet per gallon is widely used.

Reference: Frederick D. Rossini, "A Decade of Research on the Chemical Constitution of Petroleum," Amer. Pet. Inst., Chicago, November 11, 1937.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Chlorine

Use—Making treating solutions and synthetic products.

Form—Liquid in cylinders. Under normal conditions a pungent, greenish yellow gas.

Symbol—Cl.

Specific gravity—2.491.

Melting point— —150° F.

Boiling point— —28° F.

LIMITATIONS

Purity ..... 99.5 per cent

Note: The purity is determined by absorbing the gas in sodium hydroxide solution, specific gravity 1.25, and per cent of chlorine calculated from the volume absorbed.

Correcting Temperatures For Barometric Pressure

Will you kindly furnish me with the table which is used for correcting boiling points for atmospheric pressures? Who is the inventor of this table?—N. B. S.

The corrections for barometric pressure are indicated in the table:

CORRECTIONS FOR BAROMETRIC PRESSURE

(Add if below 760 mm. and subtract if above 760 mm.)

Temperature range °C.	Temperature range °F.	Correction per 10 mm. difference in pressure °C.	Correction per 10 mm. difference in pressure °F.
10- 30	50- 86	0 35	0 63
30- 50	86-122	0 38	0 68
50- 70	122-158	0 40	0 72
70- 90	158-194	0 42	0 76
90-110	194-230	0 45	0 81
110-130	230-266	0 47	0 85
130-150	266-302	0 50	0 89
150-170	302-338	0 52	0 94
170-190	338-374	0 54	0 98
190-210	374-410	0 57	1 02
210-230	410-446	0 59	1 06
230-250	446-482	0 62	1 11
250-270	482-518	0 64	1 15
270-290	518-554	0 66	1 19
290-310	554-590	0 69	1 24
310-330	590-626	0 71	1 28
330-350	626-662	0 74	1 32
350-370	662-698	0 76	1 37
370-390	698-734	0 78	1 41
390-410	734-770	0 81	1 45

Boiling points may be determined at any pressure from this table when known at one pressure. The data have been arranged for correction to 760 mm. (29.92 inches) by the American Society for Testing Materials by use of the Sydney Young equation:

For Centigrade readings:

$$C_c = 0.00012\ (760 - P)\ (273 + t_c)$$

For Fahrenheit readings:

$$C_f = 0.00012\ (760 - P)\ (460 + t_f)$$

in which C_c and C_f are, respectively, corrections to be added to the observed temperature t_c or t_f, and P is the actual barometric pressure in millimeters of mercury.

Questions on Petroleum Technology may be sent to Dr. Charles K. Francis, The Oil and Gas Journal, Tulsa, Okla. When a copy of the answer is desired, postage should be enclosed.

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MODEL 2L-200

Standard equipment includes horizontal counter with six-figure totalizer which cannot be set back — and a four-figure delivery register with concealed shutter, convenient set-back, and one-tenth gallon indicator.

Vertical Dial Counters are also available. They are interchangeable with horizontal counters.

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For Fast, Accurate Metering

OF PETROLEUM PRODUCTS

Smith Meter, Model 2L-200, Especially Designed for Pipe Line, Refining, and Distributing Services (20 g.p.m. to 300 g.p.m.)

THIS METER has a normal capacity of 200 gallons per minute and a maximum rate of 300 gallons per minute. Maximum working pressure is 125 pounds per square inch.

The exclusive Smith metering principle allows continuous flow without restriction or interruption of the stream—while Smith design and precision manufacture insure lasting accuracy of a very high degree throughout the entire flow range from 300 g.p.m. down to 20 g.p.m.

Friction is almost entirely eliminated, hence energy consumption is negligible—lower, in fact, than in any other device for this service. There are no reciprocating pistons or valves to wear and reduce accuracy or retard the flow. There is no slippage. The meter is particularly sensitive to slow flows—and its accuracy is not affected by sudden changes in flow rate.

Because of the utter simplicity of its design, like all Smith Meters, Model 2L-200 is thoroughly practical in commercial application; gives long, trouble-free service.

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Mid-Continent Refinery Runs Raised by 45,000 Barrels During April

By D. H. STORMONT

Daily runs in Mid-Continent refineries are being increased by 45,000 bbls. during April, according to estimates made at the first of the month. The daily total for the area, 537,720 bbls., is over 21,000 bbls. less than was processed in April, 1937, and is the highest level for the present year. The increase in runs was accounted for largely by resumption of activities in several plants that have been shut down for the past few months and increased schedules in a few of the larger refineries.

The East Texas district shows the greatest increase in runs, the total for the area being advanced by 14,125 bbls. daily to 56,035 bbls. Three plants were reopened in the East Texas field to account for some 7,000 bbls. of the raise. These were the plants of Beacon Oil & Refining Co., Danciger Refineries, Inc., and Utah Refining Co. Four of the largest and most modern plants in the field were still shut down on the first of the month, although it was expected that at least one of them would be placed in operation sometime during April. If so, the total for this district will be somewhat larger than that shown here. The four plants reported shut down were those of McMurrey Petroleum Corp., Premier Oil Refining of Texas, Solvex Refineries, Inc., and Tower Refining Co. East Texas Refining Co. is increasing daily runs in its Longview plant from 2,500 bbls. in March to 7,250 bbls. for April.

Oklahoma Runs Increased

The second largest increase in daily runs is shown in Oklahoma, where activities have been greatly curtailed for the past four months. Here, as in East Texas, the reopening of plants accounted for a good portion of the raise. Only five plants on the list were reported as being shut down, and these are all of a more or less permanent nature. Two plants showing substantial increase in runs were those of Champlin Refining Co., a raise of 5,000 bbls., and Continental Oil Co.'s Ponca City refinery, a boost of approximately 2,250 bbls. daily.

Both the North Louisiana and Arkansas districts show small increases. Reductions in schedules at Arkansas Fuel Oil Co.'s Bossier City plant and in some of the smaller refineries served to offset the resumption of activities in Shoreline Oil Co.'s Lewis refinery and the placing in operation of a new plant. Shoreline, after being closed for the past four months, has reponed its plant and will run about 2,000 bbls. daily. The new plant placed in operation was that of Premier Oil Refining Co. of Texas at Cotton Valley. The plant is of 3,000 bbls. daily capacity and will be operated at the rate of 2,000 bbls. daily during this month.

Olney Plant Closed

In North Central Texas one new plant was reported closed down, that of Olney Oil & Refining Co. at North Olney. The plant was expected to be reopened some time during the month, however. An increase of 5,000 bbls. at Magnolia Petroleum Co.'s Forth Worth plant accounted largely for the 5,425-bbl. raise in runs shown for this district. One name change was reported, that of Kraco Refining Co. to Bryson Pipe Line & Refining Co. The company was taken out of receivership as of April 1 and reorganized. Its pipe-line system extends throughout the Bryson field, from which its crude supply is obtained.

The Kansas district also shows a boost of about 5,000 bbls. in runs to stills. Bay Petroleum Co. has reopened its McPherson plant after rebuilding a portion of the plant damaged by fire last December. The remainder of the increase was accounted for by higher runs at Barnsdall Refining Co.'s Wichita plant, Shell Petroleum Co.'s Arkansas City plant, and Socony-Vacuum Oil Co.'s Augusta plant.

In the Southwest Texas district runs are being maintained at near March levels. The Mirando City plant of Misko Refineries, Inc., formerly operated under lease by Amsco Refining Co., has been returned to its owners and shut down. Magnolia Petroleum Co.'s 1,500-bbl. increase in runs at its Luling plant, however, served to offset the 2,000-bbl. decrease in runs resulting from the shutting down of the Misko plant. The other plants show only minor changes.

Mid-Continent Crude Runs

Average Daily (Barrels)

(Advance estimate compiled by The Oil and Gas Journal)

	1936	1937	1938
January	501,600	531,535	529,710
February	519,960	541,790	507,985
March	478,760	533,875	491,935
April	506,775	558,385	537,720
May	513,510	572,855	.....
June	527,225	593,625	.....
July	539,370	605,640	.....
August	557,650	624,475	.....
September	553,215	625,485	.....
October	536,330	619,210	.....
November	548,015	592,170	.....
December	535,500	544,040	.....

Operations by Refinery Districts

Daily crude runs

	April	Mar.	Incr.
Arkansas	27,470	24,450	3,020
East Texas	56,035	41,910	14,125
Kansas	130,865	125,600	5,265
N. Central Texas	37,030	31,605	5,425
North Louisiana	48,800	47,900	900
Oklahoma	144,630	131,900	12,730
Southwest Texas	15,325	15,000	325
W. Texas Panhandle	77,565	73,570	3,295
Total	537,720	491,935	45,085

Estimated Daily Average Mid-Continent Refinery Crude Runs for April

ARKANSAS

Company and location—	Daily capacity	Av. dly. runs April	Av. dly. runs March
Berry Asphalt Co., Waterloo	2,000	1,100	950
Henry H. Cross, Smackover	6,000	3,500	2,400
Lion Oil Ref. Co., El Dorado	17,000	13,800	12,000
Macmillan Pet. Corp., Norphlet	2,500	2,000	2,000
Root Pet. Co., El Dorado	10,000	6,670	6,700
Stephens Ref. Co., Stephens	700	400	400
Total	38,200	27,470	24,450

KANSAS

Company and location—	Daily capacity	Av. dly. runs April	Av. dly. runs March
Barnsdall Ref. Co., Wichita	5,000	5,000	4,000
Bay Pet. Co., McPherson	3,500	1,500	(*)
Chanute Ref. Co., Chanute	1,000	700	700
Chase Ref. Co., Chase	800	(*)	(*)
Derby Oil Co., Wichita	8,000	6,000	6,000
El Dorado Ref. Co., Eldorado	6,000	3,500	3,500
Falcon Ref. Co., Inc., Great Bend	1,000	700	700
Globe Oil & Ref. Co., McPherson	13,000	13,000	12,500
Kanotex Ref. Co., Arkansas City	12,000	5,500	5,000
National Ref. Co., Coffeyville	8,000	4,200	4,200
Pet. Products Co., Chanute	800	600	600
Phillips Pet. Co., Kansas City	23,000	17,165	17,500
Roper Pet. Co., Parsons	400	300	300
Shallow Water Ref. Co., Scott City	2,000	1,000	1,500
Shell Petroleum Corp., Arkansas City	20,000	12,000	10,000
Sinclair Ref. Co., Coffeyville	12,000	7,500	8,000
Sinclair Ref. Co., Argentine	11,000	7,100	7,000
Skelly Oil Co., Eldorado	23,000	18,500	18,500
Socony-Vacuum Oil Co., Inc., Augusta	20,000	17,000	16,000
Standard Oil Co., (Indiana), Neodesha	7,500	5,600	5,800
United Ref. Co., Russell	1,200	700	500
Vickers Pet. Co., Potwin	4,000	3,300	3,300
Total	183,200	130,865	125,600

*Shut down.

EAST TEXAS

Company and location—	Daily capacity	Av. dly. runs April	Av. dly. runs March
Beacon Oil & Ref. Co., Henderson	4,500	200	(*)
Cascade Ref. Co., Reed Switch	3,000	1,900	2,000
Clay Ref. Co., Arp	3,500	3,600	3,500
Danciger Regs., Inc., Longview	6,000	5,000	(*)
East Tex Reg. Co., Longview	10,000	7,250	2,500
Hurricane Pet. Corp., Overton	5,000	3,170	3,060
Hurricane Pet. Corp., Arp	3,300	2,500	2,100
Lacy Ref. Co., Kilgore	3,000	2,650	2,500
Magnolia Pet. Co., Corsicana	5,000	4,865	3,750
Martin Ref. Co., Gladewater	3,000	2,500	2,000
McMurrey Pet. Corp., Tyler	10,000	(*)	(*)
Premier Oil Ref. of Texas, Willow Springs	4,000	(*)	(*)
Paluxy Asphalt Co., Talco	5,000	2,700	2,500
Sinclair Ref. Co., Camp Switch	4,000	2,400	2,000
Solvex Refs., Inc., Gladewater	4,500	(*)	(*)
Southport Pet. Co., Kilgore	4,000	3,000	3,000
Talco Asphalt & Ref. Co., Mt. Pleasant	7,000	5,000	5,500
Texas Co., The, Dallas	16,000	7,600	7,500
Tower Ref. Co., Overton	3,500	(*)	(*)
Utah Ref. Co., Kilgore	2,000	1,700	(*)
Total	105,300	56,035	41,910

*Shut down.

NORTH CENTRAL TEXAS

Company and location—	Daily capacity	Av. dly. runs April	Av. dly. runs March
Baird Ref. Co., Baird	1,500	1,200	1,200
Bryson Pipe Line & Ref. Co., Bryson	2,000	1,100	1,200
Coleman Ref. Co., Coleman	500	170	160
Continental Oil Co., Wichita Falls	6,000	4,400	1,260
Exchange Pet. Corp., Albany	800	(*)	(*)
Falls Ref. Co. Wichita Falls	2,500	600	600
Denver Prod. & Ref. Co., Gainesville	3,000	1,000	1,000
Graham Ref. Co. Graham	500	220	(*)
Gratex Ref. & Fuel Oil Co., Graham	500	270	250
Gulf Oil Corp., Fort Worth	8,000	5,100	6,400
Hightower Oil & Ref. Corp., Brownwood	750	100	100
Jacksboro Ref. Co., Jacksboro	250	60	60
La Salle Pet. Co., Burkburnett	3,000	600	600
Magnolia Pet. Co., Fort Worth	7,500	6,340	1,400
Midway Ref. Co., Goldsboro	300	90	90

Company and location—	Daily capacity	Av. dly. runs— April	March
North Texas Ref. Co., Gainesville	600	300	300
Ohio Oil Co., Fort Worth	5,000	3,300	3,100
Olney Oil & Ref. Co., North Olney	3,000	(*)	1,000
Panhandle Ref. Co., Wichita Falls	4,200	2,500	2,500
Panhandle Ref. Co., Luecders	1,500	1,000	900
Sinclair Ref. Co., Fort Worth	4,000	2,700	2,800
Southland Ref. Co., Olney	500	30	30
Taylor Ref. Co., Taylor	1,000	800	800
Texas Pacific Coal & Oil Co., Caddo	800	500	600
Tucker Oil Co., Burkburnett	400	250	155
Tydal Ref. Co., Gainesville	1,850	1,400	1,400
Wagoner Ref. Co., Electra	4,000	3,000	3,700
Total	61,950	37,030	31,605

*Shut down.

NORTH LOUISIANA

Arkansas Fuel Oil Co., Bossier City	25,000	19,000	21,000
Atlas Pipe Line Co., Shreveport	12,500	9,000	9,500
Bayou State Oil Corp., Hosston	750	500	400
East Texas Ref. Co., Sandra	7,000	4,500	5,000
Premier Oil Ref. Co. of Texas, Cotton Valley	3,000	2,000	(†)
Rodessa Oil & Ref. Co., Cedar Grove	10,000	8,300	8,500
Shoreline Oil Co., Lewis	5,000	2,000	(*)
Stanolind Oil & Gas Co., Superior	5,000	3,500	3,500
Total	68,250	48,800	47,900

*Shut down. †Building.

OKLAHOMA

Anderson-Prichard Ref. Corp., Cyril	7,500	6,000	6,000
Barnsdall Ref. Co., Barnsdall	5,000	3,300	3,500
Barnsdall Ref. Co., Okmulgee	7,500	(*)	(*)
Bell Oil & Gas Co., Grandfield	5,000	3,100	3,100
Black Gold Ref. Co., Oklahoma City	2,500	900	900
Champlin Ref. Co., Enid	16,000	12,000	7,000
Cities Service Oil Co., Okmulgee	4,000	2,300	2,200
Cities Service Oil Co., Ponca City	12,000	7,300	7,500
Continental Oil Co., Ponca City	26,000	20,500	18,250
Cosco Oil Co., Wynnewood	2,500	1,500	1,500
Cushing Ref. & Gasoline Co., Blackwell	1,700	(*)	(*)
Cushing Ref. & Gasoline Co., Cushing	4,200	3,500	3,750
Deep Rock Oil Corp., Cushing	10,000	9,000	9,000
Eason Oil Co., Enid	3,000	(*)	(*)
Globe Oil & Ref. Co., Blackwell	8,000	(*)	(*)
Johnson Oil Ref. Co., Cleveland	6,000	4,000	4,000
Knox Ref. Co., Covington	300	100	100
Mid-Continent Pet. Corp., West Tulsa	35,000	18,700	19,100
Ohio Oil Co., Bristow	5,000	2,800	2,800
Omar Ref. Co., Garber	5,000	2,100	2,000
Peppers Gasoline Co., Oklahoma City	500	400	400
Phillips Pet. Co., Okmulgee	6,500	5,330	5,700
Pure Oil Co., Muskogee	9,000	5,600	(*)
Rock Island Ref. Co., Beckett	6,500	5,000	5,000
Sinclair Ref. Co., Sand Springs	6,000	4,000	4,000
Sooner State Ref. Co., Oklahoma City	700	(*)	(*)
Sun Oil Co., Yale	5 000	2,000	2,000
Sunray Oil Co., Allen	7,000	3,300	3,200
Texas Co., West Tulsa	16,000	9,200	9,400
Tide Water Oil Co., Drumright	12,000	11,500	11,500
Wilcox Oil & Gas Co., Bristow	6,000	1,200	(*)
Total	241,400	144,630	131,900

*Shut down.

SOUTHWEST TEXAS

Carle Ref. Co., Inc., San Antonio	1,000	(*)	(*)
Eggleston Oil Products Co., Three Rivers	1,800	1,000	700
Humble Oil & Ref. Co., San Antonio	5,000	3,000	3,000
Ina Oil & Ref. Co., Hondo	400	(*)	(*)
Magnolia Pet. Co., Luling	8,000	5,150	3,500
Misko Refineries, Inc., Mirando City	4,500	(*)	2,000
Pettus Oil & Ref. Co., Pettus	1.000	800	800
Phoenix Ref. Co., San Antonio	1,200	700	700
Phoenix Ref. Co., Pettus	900	400	400
Pioneer Oil & Ref. Co., Somerset	2,000	775	700
Rado Ref. & Prod. Co., McAllen	800	700	800
Texas Co., San Antonio	5,000	2,400	2,000
White Wing Ref. Co., Sullivan City	1,000	400	400
Total	32,600	15,325	15,000

*Shut down.

WEST TEXAS AND PANHANDLE

Aero Gas & Ref. Co., Fort Stockton	350	100	100
Coltex Ref. Co., Colorado	12,500	8,000	8,000
Concho Ref. Co., San Angelo	250	70	70
Cosden Oil Co., Big Springs	15,000	8,500	8,500
Danciger Refs., Inc., Pampa	6,500	4,000	4,600
Danube Oil Corp., Borger	400	200	200
Farmers Ref., The, Lubbock	500	200	200
Gulf Oil Corp., Sweetwater	7,000	6,800	5,900
Howard County Ref. Co., Big Spring	2,000	1,000	1,000
Moutray Oil Co., Hawley	1,400	925	750
Onyx Ref. Corp., Hawley	3,000	1,500	1,500
Panhandle Ref. Co., Kings Mill	2,500	1,700	1,600
Payward Ref. Co., Shamrock	600	600	600
Phillips Pet. Co., Borger	35,000	25,000	20,500
Post Refining Co., Rotan	800	650	650
Shamrock Oil & Gas Corp., Sunray	3,000	1,800	2,500
Shamrock Oil & Gas Corp., Lefors	1,600	1,200	1,300
Standard Oil Co., of Texas, El Paso	14,000	9,200	8,250
Stamford Ref. Co., Stamford	450	370	400
Star Light Ref., Co., Ballinger	1,000	150	150
Texas Co., El Paso	2,000	1,300	1,300
Texas Co., Amarillo	6,000	3,200	3,000
West Texas Ref. Co., Pecos	500	(*)	300
Western Ref. Co., Fort Stockton	1,000	100	100
Wickett Pet. Co., Wickett	3,500	2,000	2,100
Total	120,850	77,565	73,570

*Shut down.

Tulsa S.A.E. Group to Meet At University of Oklahoma

The April 29 meeting of the Tulsa S.A.E. group is to be held as a joint meeting with the University of Oklahoma S.A.E. student branch at the university, Norman, Okla. The university is holding their annual engineering open house and have invited the American Society of Mechanical Engineers and the regional group of the Oklahoma Professional Engineers as guests. The program is as follows: Visit engineering laboratories prior to dinner. Dinner at Student Union Building at 7 p.m. Presentation of S.A.E. student branch charter. Comments by representatives of A.S.M.E. and Oklahoma Professional Engineers. Paper "Volatility and Performance Characteristics of Gasoline," by D. E. Hamilton.

Richmond Petroleum Obtains Concession in Colombia

Richmond Petroleum Co., subsidiary of Standard Oil Co. of California, has been granted an oil concession covering 50,000 hectares within the territorial limits of the municipality of Simiti in the Department of Bolivar.

It is the first concession granted by Colombia to Richmond Petroleum Co. Negotiations were started in April, 1937.

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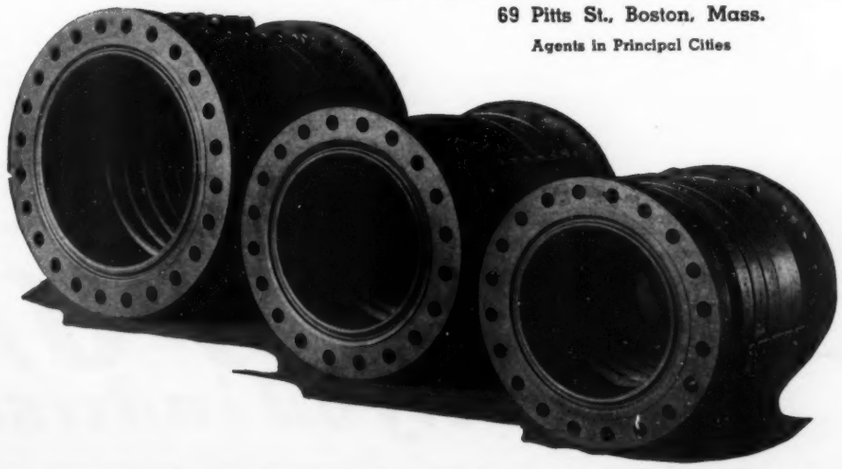

ATOMIC ACHIEVEMENT!

SPLITTING THE ATOM

Illustration shows Dr. Robert J. Van de Graaf's electrostatic generator in Massachusetts. When splitting atoms, current streaks from one aluminum ball to the other through a vacuum tube, creating energy up to 5,000,000 volts.

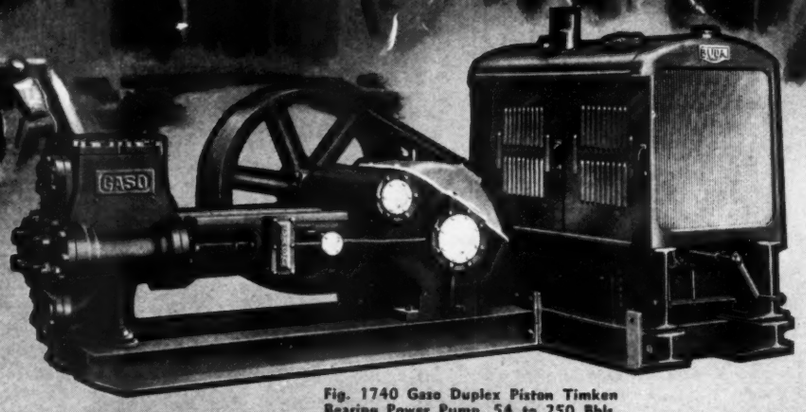

Fig. 1740 Gaso Duplex Piston Timken Bearing Power Pump, 54 to 250 Bbls.

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FIELD OPERATIONS

Summarizing the Week's Developments

KANSAS—A Graham County discovery well was completed for a potential of 2,105 bbls. to open the first pool in the county. Wildcats also opened pools in section 7-20-11w, Barton County, and section 28-25-12w, Stafford County. Another Barton County wildcat in section 10-17-12w had oil in the hole and was preparing to test. The Lindsborg pool, McPherson County, was extended one-fourth mile southward. A Russell County pool opener was completed in section 4-15-12w.

OKLAHOMA—Production in the Ramsey pool, Payne County, was extended one location eastward at a well that flowed 1,645 bbls. of oil in three hours to rate as the largest of five producers. An outpost one-half mile west of the pool was dry in Wilcox sand. A new producing area was opened in section 29-9-9, Hughes County. A Calvin sand producer in the old St. Louis field, Pottawatomie County, flowed 150 bbls. of oil an hour.

NEW MEXICO—A pool opener was completed in extreme southeastern Lea County in section 1-26-37. The Vacuum pool was extended three-fourths mile northwest in section 22-17-34. Other New Mexico completions included two oil wells in Lea County and two oil wells and a failure in Eddy County.

TEXAS—The K.M.A. field in Wichita and Archer counties produced 14,450 bbls. a day for the week ending Saturday. The new pool in Houston County already has called for two offsets to the discovery well. Wildcats in Andrews, Gaines and Yoakum counties are giving indications of production, and an extension to the Slaughter field in Hockley County was made by a better than 200-bbl. well. Crockett County has a new pool opened by a 100-bbl. well at 1,538 feet, drilled by Choate and Hogan. A 1,300-bbl. well was added to the Rock Crossing field in Wilbarger County. Deep production was opened on the north flank of the Orange field in the Gulf Coast district, the discovery well starting at 33 bbls. per hour from pay at 5,960-75 feet. A third productive sand was opened in the West Saxet field in Nueces County.

CALIFORNIA—Continental Oil Co.'s deepest oil well in the world started at 3,000 bbls. a day. This deep sand may cover a large area in the Wasco district in Kern County, San Joaquin Basin.

WYOMING—A 1,600-bbl. well extended the Minnelusa pay in the Lance Creek field in Niobrara County.

ILLINOIS—Of the 32 oil wells completed last week, 25 were in the Centralia field in Clinton and Marion counties. Three Richland County completions produced an aggregate of 4,970 bbls. the first 24 hours.

TEX-LA-ARK—Southern Arkansas tests continue to lead in interest in the tri-state area. One test in the Village area in Columbia County is showing oil on preliminary tests. It is near the new Magnolia pool.

Completions in All Fields

(Week Ending April 16, 1938)

	Oil	Gas	Dry	Total	1938 total comp. to date	1937 total comp. to date
N. Y., Pa. and W. Va.	39	6	6	51	1,378	1,262
Ohio	5	9	1	15	266	282
Indiana	0	0	0	0	25	33
Kentucky	10	6	4	20	214	33
Illinois	32	1	2	35	232	14
Michigan	5	1	9	15	206	240
Kansas	19	1	10	30	530	631
Oklahoma	20	1	12	33	491	789
Texas:						
North Central Texas	41	0	22	63	811	789
West Texas	29	1	1	31	668	723
Texas Panhandle	3	0	0	3	196	188
East Texas	45	0	0	45	710	597
East Central Texas	3	1	3	7	108	192
East Texas Border	0	0	0	0	48	126
Gulf Coast Texas	17	1	2	20	358	378
Southwest Texas	39	5	17	61	627	969
Total Texas	177	8	45	230	3,526	3,962
North Louisiana	7	0	2	9	176	118
Gulf Coast Louisiana	4	0	3	7	145	135
Total Louisiana	11	0	5	16	321	253
Arkansas	4	0	2	6	69	35
Montana	1	0	0	1	18	29
Wyoming	2	0	0	2	52	28
Colorado	0	0	0	0	1	6
New Mexico	6	0	1	7	171	218
Utah	0	0	0	0	0	0
California	18	0	9	27	401	401
Total United States	349	33	106	488	7,901	8,216
Total previous week	348	27	102	477		
Difference	1	6	4	11		

Outstanding Fields--Highlights

(Week Ending April 16, 1938)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
Hastings	4	12	5	2,527	509	19,739
McCampbell	2	4	2	296	114	5,212
Saxet	3	9	2	160	95	35,839
Benavides	5	11	6	1,140	176	9,816
East Texas	43	107	45	2,229	24,931	431,347
Talco	3	3	1	243	626	26,848
K.M.A.	39	171	12	15,200	261	14,450
Ector County	22	102	12	15,702	964	32,000
Winkler County	8	21	3	3,085	1,613	36,998
OKLAHOMA						
Dora	2	11	2	869	47	5,750
Oklahoma City	3	16	2	2,441	1,063	118,200
KANSAS						
Barton County	4	18	6	4,382	305	9,930
Ellis County	5	20	2	491	303	7,410
Rice County	4	16	3	2,273	1,134	26,000
Russell County	5	42	1	18	1,049	28,315
NEW MEXICO						
Lea County	10	97	4	882	1,689	99,850
LA-ARK-TEX						
Rodessa, Ark.	3	7	1	735	76	8,130
Rodessa, La.	2	3	3	250	454	42,055
Rodessa, Tex.	3	21	0	0	418	38,055
Lisbon, La.	3	11	1	1,440	198	10,985
Shuler, Ark.	4	19	3	2,630	42	19,995
MICHIGAN						
Buckeye	2	18	4	658	389	24,935
ILLINOIS						
Central Illinois	34	124	32	10,959	404	28,100
CALIFORNIA						
Wilmington	9	37	12	22,098	441	98,650

Eastern Field Report

By STAFF CORRESPONDENT

Gasser in Muskingum Makes 10,000,000 Ft. the First Day

PITTSBURGH, Pa., Apr. 18.—In Muskingum County, Ohio, Gas Producing Co. of Ohio brought in the largest gas well completed in the state for a considerable length of time. It was the test on the R. P. Finley farm in the northeast corner of Harrison Township, section 7, and was completed in the Clinton sand at a total depth of 4,250 feet. It gauged 10,000,000 feet a day.

In the northeast corner of Brush Creek Township, section 3, W. L. Sutton completed a test on the C. W. Enoch farm, Muskingum County, in the Clinton sand at a depth of 4,180 feet. It is a gas well gauging 500,000 feet a day.

In Licking County, McClay Brothers completed a test on the Townsend Orr farm in section 10, Licking Township, in the lime at 2,325 feet and it gauged 2,000,000 feet a day. In section 16, Perry Township, G. S. Lacknett and others completed No. 5 W. W. Reynolds in Berea sand at 800 feet. It produced 17 barrels the first day after shot. In section 15, Mary Ann Township, C. R. Settles and others completed No. 5 P. F. Shannon in the same formation at 770 feet and it produced 10 barrels the first day after shot.

SOUTHWEST PENNSYLVANIA

Evidencing a more complicated structure than expected, but in no way detracting from the possibilities of the well, the intrusion of salt water in a test now drilling on Chestnut Ridge in Fayette County, Pennsylvania, suggests planal faulting. In the Wasson & Co. test on the J. H. Sorg farm in North Union Township, salt water was encountered in the Balltown, Tiona, or related sand between 1,800 and 1,900 feet. The hole is now being reamed out to lower casing to shut off the flow. In the two wells drilled on the Summit Hotel lease in South Union Township, south of the National Highway, surface water was shut off with 900 feet of casing. In the test in Wharton Township, about 1,500 feet northeast of the Sorg farm, no water was struck in the above formation. In this test, the Greensboro Gas Co. is drilling at 4,400 feet on the J. R. Thompson farm, and making excellent headway.

In Springhill Township, Fayette County, about nine miles south of the Summit wells on Chestnut Ridge, the L. J. Houze-Convex Glass Co. is drilling at 420 feet on the Paul Dunham farm north of Wymps Gap.

In Hampton Township, Allegheny County, South Penn Oil Co. and others on the Fred Backhaus farm set 13⅜-inch surface casing at 308 feet. Drilling will be resumed with the rotary outfit carrying over a 9-inch hole to the Onondaga expected at about 6,300 feet.

In Westmoreland County, Penn Township, the Peoples Natural Gas Co. set surface casing in the deep test on the John S. Marshall farm and has resumed drilling with the rotary reaching 1,690 feet. Fair progress is being made.

In Greene County, the Equitable Gas Co. completed a gas well in No. 2 Sadie A. Connor in Washington Township, at a depth of 2,635 feet. The Fifty Foot sand was topped at 2,621 feet with 675,000 feet of gas at 2,632 feet which later blew down to 585,000 feet a day.

In Gilmore Township, Greene County, Peoples Natural Gas Co. deepened No. 1 Enza Rice to 3,752 feet and plugged it. The Fifty Foot sand was at 3,190-3,249 geet with a small gas showing at 3,210 feet.

In Washington County, Fox & Foley and others deepened No. 1 Minerva Sine in Amwell Township to 3,014 feet without striking more gas of commercial value.

In Peters Township, Washington County, R. M. Duden and others at No. 1 the P. L. Parks has 5⅛-inch casing set at 2,370 feet. In Buffalo Township, this operator is rigged up on the Antonius Provanzano farm. In North Strabane Township, Keystone Drilling Co. is shut down at 770 feet J. C. Beabout No. 2. In Morris Township, the Union Gasoline and Oil Corp. is hauling in the rig for the test on the W. E. Craft farm.

In Greene County, Carnegie Natural Gas Co. topped Nineveh Thirty Foot sand on the J. H. Orndoff farm in Center Township, at 3,064 feet and is shut down. The cave break above the sand was shot, cleaned out and is being cemented. J. B. Orndoff is drilling at 1,464 feet in No. 2 G. M. Scott in this township.

In Washington Township, Peoples Natural Gas Co. is deepening No. 1 Eva M. Simmons and has reached 1,320 feet. In Springhill Township, Taylor Oil and Gas Trust is drilling at 3,137 feet in No. 5 John Taylor. In Monongahela Township, Fred Garrison is deepening the test on the Stoneking farm and drilling at 2,060 feet.

WEST VIRGINIA

One oil well was completed in West Virginia during the week. In Gilmer County, the second test of Paul K. Weekley on the Floyd W. Beall farm in Dekalb district is showing for 3 or 4 barrels a day from the Maxton sand with a total depth of 1,732 feet.

In Cabell County, Empire State Gas Co. completed the test on the T. I. and A. S. Swann farm in McComas district at 3,441 feet. It was good for 216,000 feet per day.

In Boone County, Cambridge Gas Co. completed No. 4 J. T. Price in Scott district at 3,768 feet. Brown shale lay at 3,335-3,750 feet with 450,000 feet of gas a day at 2,900 feet, 3,000 feet and 3,750 feet.

In Calhoun County, Pearl Adams drilled a test on the L. C. Jarvis farm in Center district through the Injun sand to 2,220 feet and it was a dry hole.

In Nicholas County, Hamilton Gas Co. drilled No. 5 Kinney Hawkins Estate in Hamilton district to 2,244 feet, through Injun sand, and it was dry. Hope Natural Gas Co. drilled No. 7805 Thompson Land and Coal Co. in Jefferson district to 1,642 feet and it was dry.

In Ritchie County, W. R. Hays drilled No. 3 C. N. Felton in Murphy district deeper through the Squaw sand to 2,257 feet and it is a small gas well gauging 33,624 feet a day.

In Wirt County, the second test of the Carnegie Natural Gas Co. on the W. C. Patterson farm in Burning Springs district was bottomed at 2,808 feet in shale. It was dry. It was searching the oil found in a stray formation in No. 1 between 2,200 and 2,500 feet.

Oriskany Gas Field

In Kanawha County, West Virginia Gas Corp. completed a test on the John and Sadie Dixon farm in Poca district in the Oriskany sand at 4,811 feet. The sand was topped at 4,791 feet and the final gauge was 6,422,000 feet a day. Glenn Oil and Gas Co. drilled a shallow well on the James A. Haynes farm on the eastern flank of the pool to pick up the oil present in the Salt sand in the No. 1. It reached 1,307 feet through that formation and was dry.

No new locations were announced during the week. In Elk district, the Columbian Carbon Co. is down 1,256 feet in B. F. Jones No. 1; 3,391 feet in Margaret Rayhill No. 1; with a location on the W. B. Fogarty farm. The Cameron Oil and Gas Co. has reached 3,100 feet on the Henry Hansel farm.

In Poca district, United Carbon Co. topped Corniferous lime at 5,009 feet on the William R. Young farm; was drilling at 477 feet in the Louisa E. Long test and at 3,635 feet in the James S. Fisher test. This company has the road completed to the location for a test on the I. C. Miller farm.

United Fuel Gas Co. is down 4,745 feet in No. 4771 B. A. Sisson; at 4,679 feet in No. 4784 Oscar L. Gibson, and at 1,917 feet in No. 4790 W. H. Sisson. Guy B. Ray has spudded in and started drilling the Emmett Thaxton test. Joe Rubin is down 1,670 feet in the Carney Heirs test on the northwest flank of the pool. Liosag Fuel Co. is drilling at 1,990 feet and the H. C. Matthews land. D. H. Stephenson and Co. has reached 1935 feet in the Rozella Shamblin and others test. Columbian Carbon Co. spudded in and started drilling the Boyd Castro test.

In Union district, Columbian Carbon Co. is down 2,420 feet on the Nelson H. Cavender farm. The West Virginia Gas Corp. has reached 1,825 feet and shut down on the J. E. Layne and others test.

In Poca district, South Penn Oil Co. is drilling at 3,450 feet in No. 2 S. S. Beane; at 1,145 feet in the T. H. Newhouse No. 54, and is building the rig for the Beane-Newhouse line test.

Deep Tests

In Jackson County, the Potter Development Co. is reaming to 1,882 feet on the William T. Chancey farm in Ripley district.

In Wood County, the Belmont Quadrangle Co. is drilling at 1,875 feet on the C. D. White farm in Steel district. In Harris district, Potter Development Co. is drilling at 1,350 feet in the W. H. Oren test. In Harrison County, the last report of the Lumberport-Shinnston test on the E. E. Heldreth farm in Eagle shows the depth as 6,800 feet. Here the Oriskany is expected at about 7,200 feet. The size of the hole is small, retarding operations.

New Work and Other Operations

In Cabell County, the Toms Creek Gas Co. made a location on the Lee Davis farm in McComas district. In Grant district, R. H. Adkins, Trustee test on the Jerusha Beckett farm is rigging up. In McComas district, the Toms Creek Gas Co. is down 1,725 feet on the Boyd Hash farm and at 200 feet in the W. S. Rodgers and others test.

In Calhoun County, G. K. and M. C. Rodgers made locations for No. 6 and 7 D. M. Miller in Sheridan district. Richter Oil Co. made a location for No. 5 Emily McCray Heirs, same district. In Center district, Hope Natural Gas Co. has a rig standing for a test on the Pierce Lough farm. In Clay County, the Virginian Gasoline and Oil Corp. is drilling at 1,585 feet in No. 1261 on the Brown. Swann and Goshorn land.

In Doddridge County, W. H. Abner is drilling at 1,940 feet on the N. J. Cunningham land, Henderson Oil Co. reached 2,196 feet in the Alexander Ligett test. Both are in Central district. In Lewis County, Hope Natural Gas Co. is drilling at 4,160 feet in No. 7790 Amanda Summers land in the Skin Creek district.

In Gilmer County, Massey & Jarvis Drilling Co. has a location for a test on the James N. Tierney Heirs in Olenville district. W. H. Petry is down 940 feet on the T. A. Reed farm. E. L. Bush is drilling at 815 feet on the Guy B. Young and others test. Pittsburgh and West Virginia Gas Co. was down 1,800 feet in No. 7640 H. L. Simmons. In Center district, H. B. Scott and others made a location on the C. W. Twyman and others land. and were building a rig on the Worthy Moore farm. In Dekalb district, Hope Natural Gas Co. spudded on the C. O. Rafferty farm. McCall Drilling Co. is down 1,000 feet on the Chester and Lillie Fling farm. Paul K. Weekley is rigging up on the George C. Ellyson farm.

In Lincoln County, Sand Creek Gas Co. is rigging up on the J. L. Caldwell farm in Harts Creek district. In Sheridan district Templeton Gas Co. is shut down for shot at 2,283 feet at No. 2 J. T. Morrison Heirs. In Logan County, Southeastern Gas Co. is rigging up on the John A. Covery Heirs land in the Logan district.

In Tyler County, George R. Kerns made a location for No. 2 Landora McIntyre (G. R. Kerns fee) in McElroy district. Rae Oil Co. has made a location for No. 2 Ralph Brooks in Union district.

In Monongalia County, Pittsburgh and West Virginia

(Continued on Page 88)

North Louisiana, Arkansas

By
GEORGE WEBER

South Arkansas Tests Lead in Interest in Tex.-La.-Ark.

SHREVEPORT, Apr. 18.—South Arkansas continued to hold the center of attention in the Tri-State area in the past week. The latest development is the testing of considerable oil in Standard Oil Co. of Louisiana No. 1 Phillips, a wildcat in the Village area, a short distance from the recently opened field at Magnolia, Columbia County. The discovery quickens the already strong interest in the trend, which is marked by the Buckner field on the northwest and the Shuler field on the southeast.

Numerous other tests throughout the district are being watched with interest. Among them are the Magnolia deep test at Shongaloo, Louisiana, which has showings of gas and distillate and Arkansas Louisiana Gas Co. No. 1 Pitts, southwest outpost to the Jefferson area in Texas, with more showings and other deep field and wildcat tests approaching critical depths.

Rodessa Completions

In Caddo Parish, Louisiana, Shell Petroleum Corp. completed three wells to add to their Rodessa production. No. 2-B U. S. Government, section 3-23-16, came in making 78 barrels per day through a ¼-inch choke, through perforations at 5,965-72 feet, tubing pressure 475 pounds and casing pressure 610 pounds. The company's No. 3-B U. S. Govt. made 82 barrels per day through ¼-inch choke, with tubing pressure 500 lbs., and casing pressure of 700 lbs. Total depth is 5,970 feet. Perforations were made at 5,953-58 feet. No. 4-B U. S. Govt., making an initial production of 91 barrels per day through a ¼-inch choke showed tubing pressue of 350 lbs., and casing pressure of 600 lbs. The well was flowing through perforations at 5,983-90 feet. The total depth is 6,003 feet.

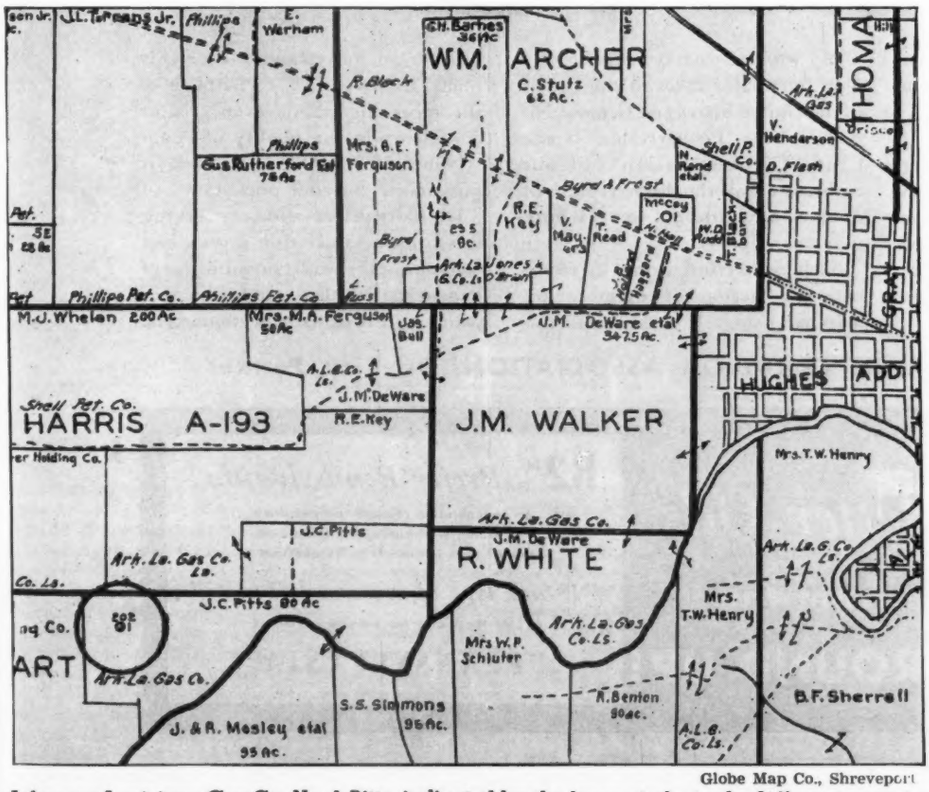
In the Miller County, Arkansas, part of the field, Gehrig Co. of Arkansas completed No. 1-B Mitchell, section 11-20-28, for 735 barrels per day through a ¼-inch choke, with tubing pressure of 50 lbs. and casing pressure of 350-lbs. Casing was set at 6,158 feet and perforated at 6,125-38 feet.

The Texas side of Rodessa showed no completions during the week, although the greatest part of the development in the three-state field is located in Marion County.

Attention of operators interested in the Jefferson-Lodi area has been directed to the Arkansas-Louisiana Gas Co. No. 1 Pitts, 2½ miles southwest of production in the Jefferson pool, and in the Charles Lockhart Survey. This well had showings of oil in the Hill sand and in a lower Gloyd sand several days ago. Recently it cored the top of the Travis Peak formation at 6,725 feet and a slight show of porosity was reported at 6,863-73 feet.

Operators cored further in the Travis Peak to a total depth of 7,070 feet and are setting casing at about 6,250 ft. to test the Hill sand where the best oil indication was had.

If successful in making a Hill producer of No. 1 Pitts, its owners will add considerable importance to the new southwest trend. The Hill sand produces no farther southwest than the east border of Cass County. Indications may be borne out that the Hill will produce down structure from the present outpost location, and if so, Jefferson will gain important extensions. The showing of oil in the Gloyd below the established water table for Gloyd sands in Jefferson proper may mean that the structure is complicated on the southwest by lateral faulting.



Globe Map Co., Shreveport

Arkansas-Louisiana Gas Co. No. 1 Pitts, indicated by the large circle, in the Jefferson area in Texas, has shown oil in the Hill and Gloyd formations, and a slight show of saturation in the Travis Peak. If the outpost proves a producer it will be the most important development since the discovery of the Jefferson pool

Sligo Producer

The Sligo field of Bossier Parish gained a new oil well as Union Producing Co. No. 2-C Skannel, section 13-17-12 came in making 1,437 barrels per day through ½-inch choke, with tubing pressure 130 lbs., and casing pressure 205 lbs. Total depth is 3,121 feet.

The Lisbon field is seeing increased activity, as new operators move in to test outlying territory. Success in numerous outpost wells over the past several weeks, coupled with a new spacing rule have contributed to the revival in interest in the field.

During the week one producer was completed at Lisbon, Atlantic Refining Co. No. 1 English, section 29-21-4. It flowed 60 barrels per hour through a ¾-inch choke, with tubing pressure 85 lbs., and casing pressure 530 lbs. The well was treated with 3,000 gallons of acid.

In the Sugar Creek field, Tri-State's deepest current test, Union Producing Co. and Standard Oil Co. of Louisiana No. 2 Brownfield, section 5-19-5 was last reported drilling at 10,332 feet. Information on this test is not being made public.

Zwolle Test Active

In Sabine Parish, the Sutton-Zwolle Oil Co. No. 1 Sabine Lumber Co. is again coring. The wildcat created considerable interest several weeks ago when it came in flowing at 3,843-53 feet. Subsequent operations, however, failed to make a commercial producer of it, and present plans are to deepen in search of further shows. Interest is still active in the area, despite the fact that the test was not completed. The old total depth is 3,857 feet.

Cotton Valley

Development of the Holloway sand at Cotton Valley is rapidly increasing. The Travis Peak sand has been widely extended throughout the field. With the increased production of that grade of crude at Cotton Valley, came the announcement this week of a 5-cent boost in the price. The Placid Oil Co., a subsidiary of the H. L. Hunt interests, active in the field, has quoted a price of $1.27 per barrel for 46 gravity and over.

In an outpost location, the Midstates Oil Corp. No. 1 Welori Lumber Co., section 3-20-10 was coring for the Holloway sand at latest reports. The test, 1 mile south of nearest production had not yet reached a show at 6,014 feet.

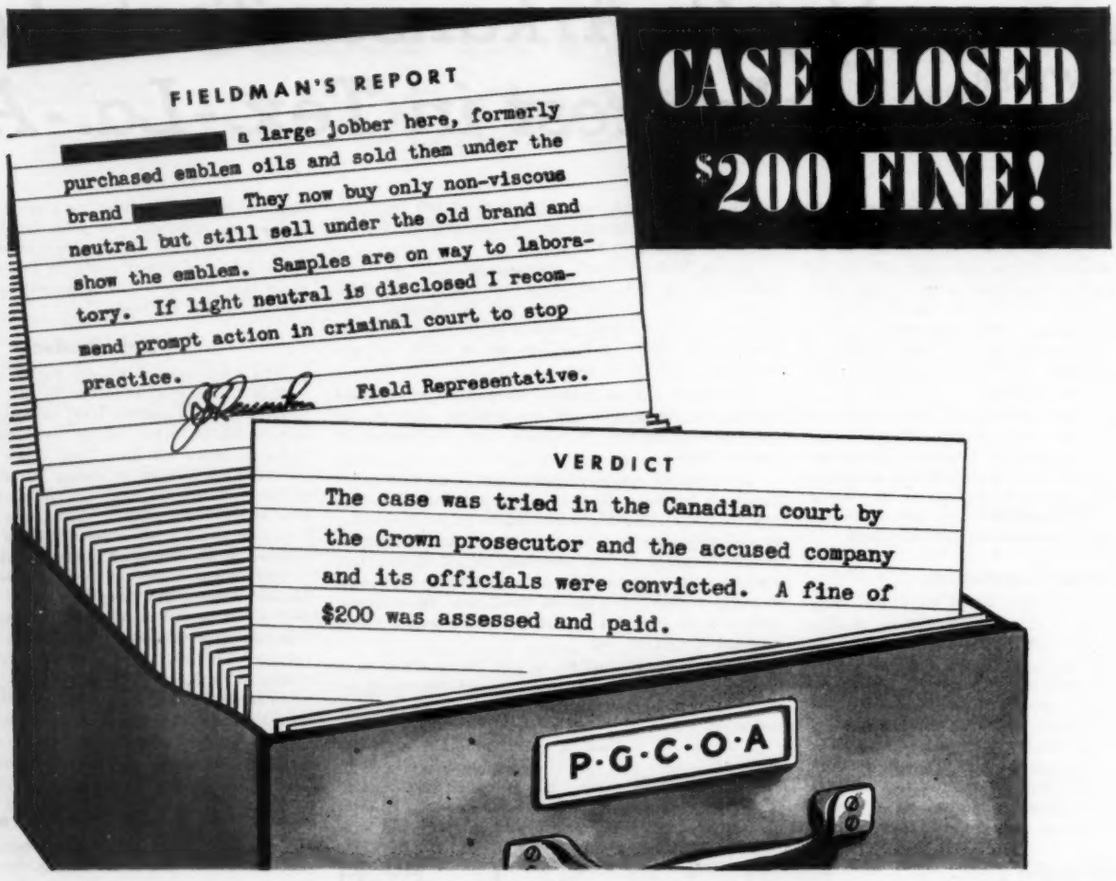
South Arkansas Fields

South Arkansas has held the center of attention for the past several months, due to the success along the northwest-southeast trend marked by the Buckner and Shuler fields of Columbia and Union counties. The completion last week of Kerr-Lynn Oil Co. No. 1 Barnett, a wildcat due east of the town of Magnolia, added a third field to the trend. Indications this week were good for a fourth producing area.

The Standard Oil Co. of Louisiana No. 1 Phillips, located 660 feet north and west of the center of section 15-17-19 is the latest discovery. It has been expected that the wildcat would have production indications, due to the fact that the test has been running high. Saturation has been cored in a sand at 4,618-22 feet.

In the past week, the wildcat reached 6,307 feet where saturation was again encountered. On a drill-stem test at 6,307-15 feet, using ¼-inch chokes at top

(Continued on Page 100


FIELDMAN'S REPORT
[redacted] a large jobber here, formerly purchased emblem oils and sold them under the brand [redacted] They now buy only non-viscous neutral but still sell under the old brand and show the emblem. Samples are on way to laboratory. If light neutral is disclosed I recommend prompt action in criminal court to stop practice.
Field Representative.
VERDICT
The case was tried in the Canadian court by the Crown prosecutor and the accused company and its officials were convicted. A fine of $200 was assessed and paid.
P·G·C·O·A

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Oklahoma Operations

By
DAL DALRYMPLE

Fifth Ramsey Pool Well Has 3-Hour Yield of 1,645 Bbls.

The Ramsey pool in Payne County was the starred actor among Oklahoma fields the past week, with a fifth large producer being completed and a sixth well offsetting production nearing rich Wilcox pay sand. An outpost one-half mile west of production was dry and a test 1 mile north of production was checking low structurally.

Mid-Continent Petroleum Corp. and others No. 2 Columbia Wetzel, NE NW SW section 18-18-2e, one location east of the No. 1 Columbia Wetzel and diagonal southeast offset to the discovery well, was rated as the largest of the five producers on basis of its initial three hours production. It flowed 588 bbls. of oil the first hour, 543 bbls. the second hour and 514 bbls. the third hour, a total of 1,645 bbls. for the period, and then was shut in for tankage. Production was from Wilcox sand at 4,745-80 feet.

Same operators' No. 2 Ramsey, NW SW NW section 18-18-2e, north offset to the discovery well, was to drill ahead to Wilcox sand after drilling plug in Viola lime at 4,728 feet. The lime was topped at 4,698 feet.

Sun Oil Co. and Loffland Brothers No. 1 Scafe, SE SE NE section 12-18-1e, 1 mile north of Ramsey production, topped Mississippi lime at 4,625 feet and was drilling below 4,665 feet in lime and running considerably lower than the discovery well.

The west side of the pool was defined at J. E. Crosbie, Inc. No. 1 Fruin, SE SE NW section 13-18-1e, one-half mile west of production. It had dry Wilcox sand at 5,013-35 feet, total depth. Previously, the pool had been defined on the south at E. H. Moore, Inc. No. 1 Boyd-Troutman, NE cor. section 24-18-1e, one-half mile south of production.

A wildcat in northwestern Hughes County was showing as a small producer. It was Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 1 Fream, NW NW SE section 29-9-9. When salt water intruded in Wilcox sand at 4,264-68 feet, it was plugged back to 3,344 feet and produced 125 bbls. of oil and 5 bbls. of water in one 24-hour test, accompanied by an estimated 4,000,000 feet of gas.

A large Calvin sand producer was near completion in the St. Louis field, Pottawatomie County, which has experienced a revival in activity in recent weeks. J. F. Smith No. 1 Hines, NW SW NW section 22-7-4, flowed 150 bbls. of oil an hour for three hours and was shut in for tankage. Production was from Calvin sand at 3,178 feet, total depth.

Oklahoma County

Stahl Petroleum Co. No. 1 Slaughter, NE NW SW section 15-12-3w, Oklahoma City field, Oklahoma County, flowed 2,087 bbls. of oil in 24 hours, accompanied by 12,300,000 feet of gas. It had Simpson zone at 6,387 feet and was bottomed at 6,485 feet, and flowed 1,475 bbls. of oil in the first 11 hours.

Champlin Refining Co. No. 1 Henches, SW NE NE section 35-12-3w, had Johnson sand at 6,332-80 feet, total depth, and flowed 966 bbls. of oil in 24 hours, with gas estimated at 1,000,000 feet.

Coline Oil Co. No. 12 Olds, SE SE NW section 24-11-3w, in the south sector of the Oklahoma City field, was dry and abandoned at 3,135 feet.

H. R. Hollenback and others No. 1 Sinopoulo, SE SW SW section 15-12-3w, had dug cellar and pits. Gulf Production Corp. of Oklahoma No. 3 Schuster, SW NE SW section 15-12-3w, was drilling below 5,404 feet.

Seminole County

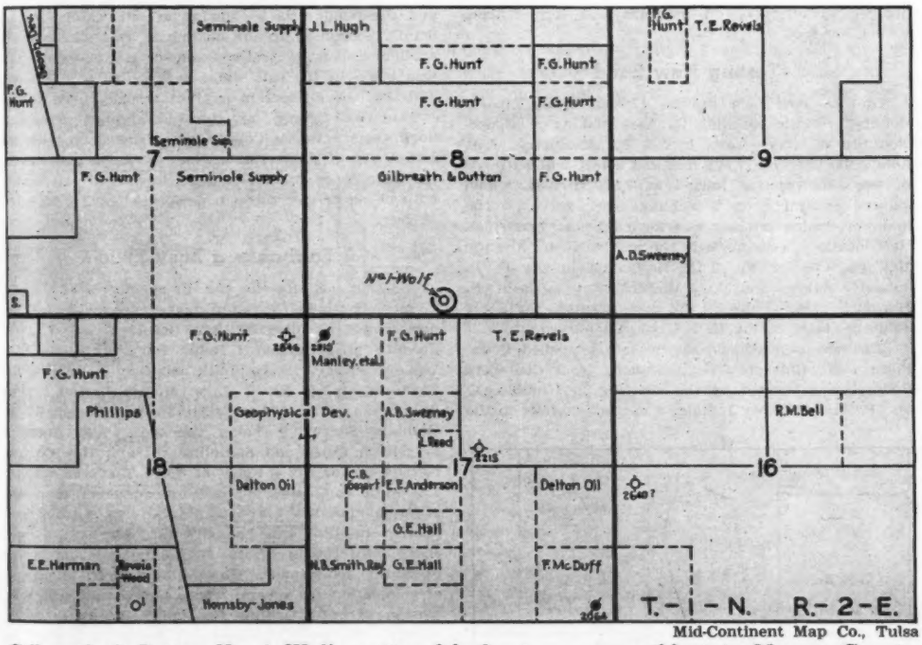
J. F. Smith and others No. 3 Harryman B, SE SE SW section 33-7-6, Dora pool, Seminole County, had Boggy sand at 2,825-92 feet, total depth, was shot with 60 quarts and flowed 700 bbls. of oil in 24 hours.

J. B. Terry and others No. 1-A Scroggins, NW SW NE section 4-6-6, found Boggy sand at 2,830-70 feet, total depth 2,882 feet, water intruded and it was plugged back to 2,870 feet, flowing 169 bbls. of oil and 50 bbls. of water in 24 hours.

Atlantic Refining Co. No. 2 West Tillman, NE SE NW section 2-10-5, North Earlsboro pool, had Wilcox sand at 4,652-56 feet, total depth, and pumped 432 bbls. of oil in 24 hours.

Indian Territory Illuminating Oil Co. No. 7 Bowlegs, NE SW NE section 22-8-6, an old well in the Bowlegs pool, was plugged back from 4,610 feet to 4,440 feet, perforated casing, acidized, pumped 56 bbls. of oil in 24 hours and was recompleted. Pure Oil Co. No. 3 Coteha, NE NW NE section 23-7-6, Little River pool, an old well, was plugged back from 4,380 feet to 3,350 feet, ripped casing, shot and pumped 5 bbls. of oil in 1½ hours, pumping off, and was recompleted.

Winkler & McQueen No. 4 Bruner, SE NW NE section 4-6-6, Dora pool, was a machine. Same operators' No. 3 Bruner, NE NW NE section 4-6-6, was drilling below 2,522 feet. Atlantic Refining Co. No. 3-A Dameron, SE NE NW section 22-6-6, had dug cellar and pits.



Mid-Continent Map Co., Tulsa

Gilbreath & Dutton No. 1 Wolf, section 8-1n-2e, is a new wildcat in Murray County, Oklahoma

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending April 16 and for the preceding week was as follows:

	Barrels	
	April 16	April 9
Allen	5,475	5,375
Billings	7,325	7,450
Burbank	7,325	7,500
South Burbank	10,750	11,250
Balance Osage	18,750	18,800
Blackwell district	4,650	4,800
Bristow-Slick	6,975	6,875
Chandler	2,350	2,325
Crescent	6,825	6,150
Cromwell	3,075	3,200
Cushing-Shamrock	10,725	10,500
Duncan district	3,725	3,775
Edmond	6,875	6,650
Fish	3,775	3,825
Fitts	53,975	55,800
Jesse	3,450	3,450
Graham	4,300	5,200
Gray	1,050	1,000
Healdton	8,600	9,325
Hewitt	3,475	4,125
Keokuk	6,400	5,000
Konawa	1,525	1,450
Lucien	12,100	11,975
Moore	7,150	7,175
Oklahoma City	178,200	137,300
Olympic	6,750	6,775
Ramsey	825	800
Sasakwa	1,750	1,750
Sholem-Alechem	2,925	2,950
Seminole district:		
Bowlegs	10,300	9,150
Carr City	4,025	4,075
Dora	5,750	6,200
Earlsboro	5,350	5,225
South Earlsboro	625	550
East Earlsboro	5,375	5,400
Little River	8,300	7,650
East Little River	900	800
Maud	725	625
Mission	1,750	1,600
Seminole	6,775	8,075
East Seminole	1,825	1,725
Searight	3,500	3,525
Total Seminole	55,200	54,600
St. Louis-Pearson	19,775	19,575
Tatums	3,750	3,700
Tonkawa-Garber-Thomas	4,250	4,350
Wewoka	2,450	2,475
Yale-Jennings	3,725	3,750
Other pools	77,500	77,000
Total Oklahoma	497,725	518,000

Wildcat Completions

C. E. Davis and others No. 1 Jones, NW NE SW section 34-6-5, wildcat southwest of Konawa in southwestern Seminole County, had Senora sand at 2,295-2,307 feet, total depth 2,314 feet, and plugged back to base of sand. It was shot and pumped and flowed 120 bbls. of oil and 14 bbls. of water in 24 hours, and when completed was pumping 25 bbls. of oil and 50 bbls. of water daily.

Pottawatomie County

The largest of three wells completed in the St.

(Continued on Page 98)

Texas and Louisiana Gulf

By
NEIL WILLIAMS

Salt Dome Found in Gulf of Mexico Off Jefferson County

HOUSTON, Texas, Apr. 18.—The discovery of a shallow piercement type of salt dome structure in the Gulf of Mexico, offshore from Jefferson County and the opening of a new sand on the southwest flank of the Orange field, Orange County featured developments along the Gulf Coast the past week.

Humble Oil and Refining Co. No. 1 State, the first wildcat to be started along the Texas side of the Gulf of Mexico, and located one mile offshore from Jefferson County, is bottomed in salt at 1,464 feet and casing has been cemented preparatory to drilling deeper. Hard caprock was topped at 1,412 feet, and the top of the salt was logged at approximately 1,450 feet. The well will be drilled deeper in the hope that it may be on an "overhang." Regardless of the outcome of this well, it is generally assumed that another potential oil field has been found in the Gulf of Mexico. The first producing field was recently opened in Coastal Louisiana, offshore from Cameron Parish.

New development for the southwest flank of the Orange field, Orange County, was assured with the showing of Ryan and Thompson No. 1 W. S. McGill, William Dyson Survey, which is preparing for a production test after recovering 15 thribbles of 37 gravity oil and 100 pounds of pressure on a 15-minute drill stem test at 6,022-6,123 feet. Seven-inch casing was cemented on bottom and the production test will be made through perforated casing. No. 1 McGill is about 2,000 feet north of the production opened last year by the same operators in a 5,900-foot horizon.

Opens Deep Production

On the north flank of the field, Union Producing Co. has opened deep production with the completion of No. 2 Lutcher-Moore Lumber Co. This well, which was scheduled to be an extremely deep test, topped the salt at 7,125 feet, and was drilled in the same formation to 7,315 feet, but the hole was plugged back to 6,000 feet and the casing perforated at 5,960-75 feet. It made an initial flow of 33 barrels per hour through a ¾-inch choke, with tubing and casing pressure equalized at 700 pounds. This is the first well to find salt. Three miles southwest of this field, Texas Co. staked location for a wildcat which will be drilled to the Frio formation. It is No. 1 H. J. Lutcher Stark in the Stephen Jett Survey.

No additional showings have been logged in Gulf Oil Corp. No. 2 Ragan in the Segno field, Polk County, which last week tested several feet of pipe line oil from the Sparta formation. It is drilling ahead in the shale below 8,400 feet. The recovery of oil was made last week on a 20-minute drill stem test at 8,148-61 feet. The same company's No. 21-C Kirby Lumber Co., Cleveland field, Liberty County, is drilling in shale below 8,729 feet with no showings reported.

J. A. Fite No. 1 fee, 2,000 feet west of production of the Sandy Point field, was shutdown in salt water sand at 6,560 feet, while decision was being made to run casing. The Discorbis was topped at 5,800 feet, Heterostegina at 6,100 feet, Round Marginulina at 6,190 feet and the Flat Marginulina at 6,303 feet. Meager showings of oil and gas was logged from 6,480-6,500 feet.

Testing New Sand

On the east side of the Hardin field, Liberty County, Atlantic Refining Co. was making a production test of a new sand in No. 2-A McMurtry. The hole is bottomed at 7,871 feet and a test will be made of the sand section logged at 7,820-31 feet, which showed favorably on a Schlumberger survey. The main producing horizon was logged below 7,600 feet. New locations were made in the past week by Atlantic Refining Co. for No. 2 A. E. Cessna in the H. B. Johnston Survey and No. 1 W. McMurtry in the A. B. Hardin Survey. Fohs Oil Co. made location for No. 2 Johnson-Finley in the H. B. Johnston Survey.

The second producer in the newly opened Cedar Point field, Galveston Bay, offshore from Chambers County, was assured by the showing in Humble Oil and Refining Co. No. 1 State, a northeast offset to the discovery well. Sand was topped at 5,908 feet, with pay at 5,939 feet. In order to establish the water level, the hole was cored to a total depth of 6,042 feet in salt water sand, with the top of the section logged at 6,010 feet. The well was not completed.

On the Smith Point Prospect, Chambers County, A. A. Cameron and others No. 1 White, Solomon Brill Survey, is bottomed at the contract depth of 8,505 feet. So far the Frio formation has not been logged and it is reported that the well will be drilled deeper.

West Production Co. No. 1 Sowden, Clear Lake area, Harris County, has been completed for a distillate well, although no gauge on its output is available. Perforations were made in the casing at 5,790-5,805 feet, and it was completed flowing through a ⅛-inch choke with a tubing pressure of 2,000 pounds and casing pressure 2,200 pounds. Its completion as a distillate well is somewhat of a surprise, in view of the fact that a 43-foot oil section was reported logged at 5,852-95 feet. This section was said to have been tested last week through perforations at 5,850-70 feet and the result was a showing of salt water. As all details pertaining to the drilling of this well are not available, it is generally assumed that the first test was made in the salt water section below 5,900 feet and that the oil section has not actually been tested.

Another failure for the old Ogburn Prospect, northwestern Harris County, was marked up with the completion of O. W. Killam No. 1 J. J. Sweeney which was abandoned 6,736 feet after it showed salt water, with no oil or gas, through perforated casing at 6,526-38 feet.

Fairbanks a Busy Field

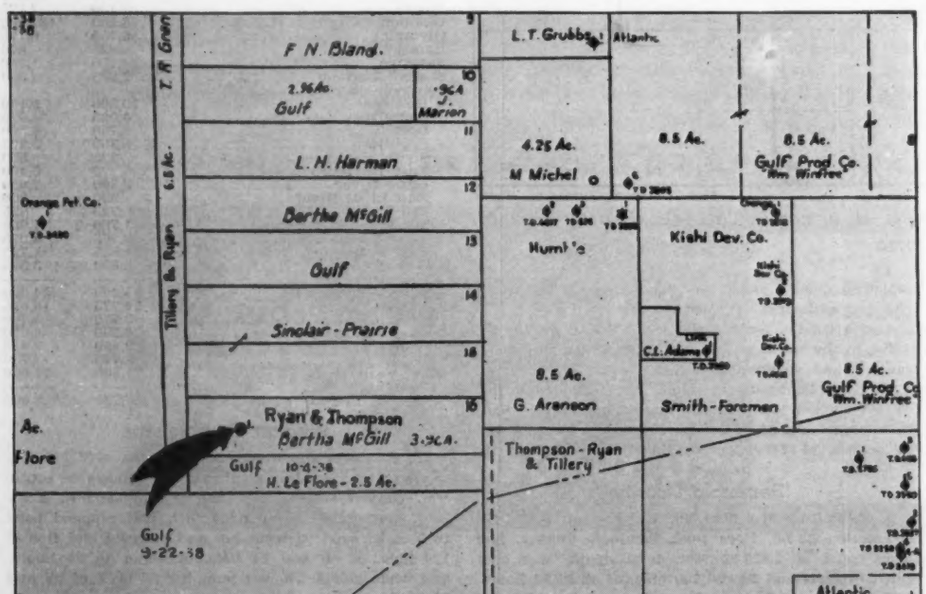
Drilling activity in the Fairbanks field, Harris County, continues to gain momentum with the announcement of four additional locations. Carroll Oil Co. has rig up for No. 1 Ralph Johnston in the J. N. Dement Survey. E. L. Smith and Ownby Drilling Co. have rig up for No. 3 L. M. Meyers in the George Ayers Survey. H. C. Adams No. 2 J. P. Dawson, W. K. Hamblin Survey is being spudded, while Amerada Petroleum Corp. and Stanolind Oil and Gas Co. are rigging up for No. 1 Foley in the J. Clarkson Survey. The same companies No. 1 White, one-half mile east of production has been completed for an initial production of 181 bbls. per day through a 12/64-inch choke with tubing pressure 2,150 pounds and casing pressure 1,250 pounds. This well has been in process of completion for several weeks due to salt water intrusion. Ownby Drilling Co. and E. L. Smith No. 2 Meyers, George Ayers Survey, logged oil sand at 6,843-51 feet and was completed for an initial production of 219 barrels per day through a ¾-inch choke.

Four wildcat locations: In Trinity County, Boone Brothers and Jordan Drilling Co. made location for No. 1 Crouch in the Joel Clapp Survey, about 7½ miles north of the town of Trinity. In the same county, W. R. Gossage has derrick up for No. 1 C. H. Elliott in the Joel Clapp Survey. In Wharton County and located in the Midfield area, Texas Co. has rig up for No. 1 C. T. Kountze in the P. J. Poole Survey. In the Sugar Land field, Fort Bend County, Strake Petroleum Corp. is spudding a projected deep test on the north flank in William Stafford Survey.

Coastal Louisiana

In the North Crowley field, Acadia Parish, Louisiana, Humble Oil and Refining Co.'s attempt to open a third sand has apparently failed as No. 1 Isaac Trahan, section 3-9s-1w, flowed only wash water with no showing of oil when tested through perforated liner at 9,771-80 feet, the total depth. The well is one mile south of production. The same company's No. 1 Lee

(Continued on Page 88)



W. W. Zingery, Maps, Houston

Southwest flank of the Orange field, Orange County, showing location of Ryan & Thompson No. 1 McGill which has opened a deeper sand at 6,123 feet

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Among Gulf Coast Drilling Contractors

Thompson Drilling Co. opened the way for additional drilling around the flank of the Orange field, Orange County, with the showing made by Ryan and others No. 1 McGill. Sand showing oil was topped at 6,112 feet, and at a total depth of 6,123 feet, a 15-minute drill-stem test recovered 15 thribbles of oil, and showed 100 pounds of pressure. Casing is being cemented for a production test. The showing of this well, together with Union Producing Co. No. 2 Lutcher Stark which opened production on the north flank, is expected to develop an extensive drilling program. Practically all wells on the new southwest flank were "dug" by Gulf Coast contractors.

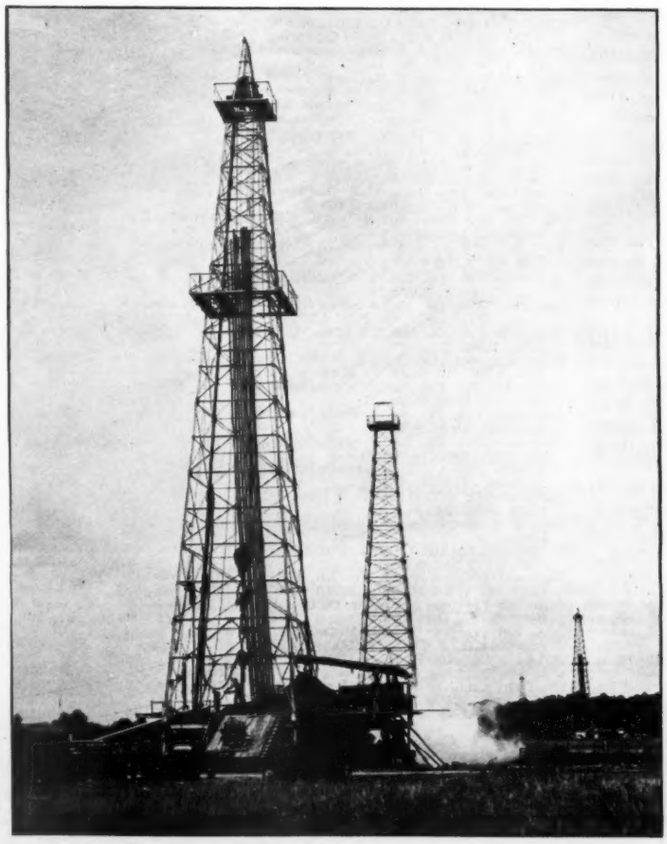
Wynne Crosby received contract from Strake Petroleum Corp. for a projected deep test on the north flank of the old Sugarland field in Fort Bend County, and the test is being spudded.

One of the most active drilling campaigns along the Gulf Coast is getting under way in the newly opened Fairbanks field in Harris County. There were five new locations made last week, bringing the total number of active operations to eight. New work was started by the Mortex Oil Co., Carroll Oil Co., E. L. Smith, H. C. Adams and Amerada Petroleum Corp. Contractors engaged in this development are Rowan Drilling Co., Housh, Schofield & Thompson, Richardson & Dillard and Ownby Drilling Co. Payne Drilling Co. has abandoned O. W. Killam No. 1 J. J. Sweeney in the old Ogburn Prospect, Harris County, at a total depth of 6,736 feet. On a production test through perforated casing at 6,526-38 feet, it developed nothing but salt water.

Jack Frazier is scheduled to start coring at his No. 1 Varner Realty Co. in the Eureka field, Harris County, while his No. 1 Gillespie, in the Aldine area, is being spudded.

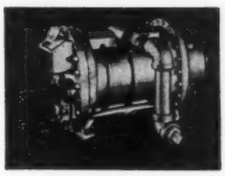
Harry L. Edwards Drilling Co. completed No. 2 Robertson as the second oil producer in the East Telferner field, Victoria County. Production was obtained from a screen setting at 5,130-82 feet, and the well is flowing 3 bbls. of pipe-line oil per hour through a 9/64-inch choke, with tubing pressure 1,800 pounds and casing pressure 2,100 pounds. At Sandy Point, Brazoria County, J. A. Fite No. 1 fee, 2,000 feet west of production,

(Continued on Page 106)



Drilling scene on the southwest flank of the Orange field, Orange County, which is being developed largely by Gulf Coast drilling contractors

BASSLER LIQUID METERS



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Rocky Mountain Area

By
T. R. INGRAM

1,600-Bbl. Lance Creek Well Extends Minnelusa Horizon

DENVER, Colo., Apr. 18.—Drilling operations in the northern Rocky Mountain area are getting away to a slow start this spring and only four new wells were reported this week. One of these is a wildcat 10 miles southwest of Pueblo, Colo., two in the Big Piney district, Lincoln County, Wyoming, and one on the Hidden dome, Washakie County, Wyoming.

Wyoming had two completions, both in the Lance Creek, and both by the Continental Oil Co. One of these, No. 3-A Diehlman, marked an extension of the Minnelusa horizon on the southeast and was rated at 1,600 bbls. The other was a Sundance sand well on the west side.

One completion was reported in the Kevin-Sunburst field in Montana in the Superior Petroleum Co. No. 7-A Government for 68 bbls. on the pump.

NEW MEXICO

A new pool was opened in Lea County and the Vacuum area was extended to the northwest, featuring field activity in southeastern New Mexico.

The pool opener was George F. Getty, Inc. No. 1 Riggs, NW cor. section 1-26-37, in the extreme southeastern corner of the county and southeast of Jal sand production. It flowed 75 bbls. of oil daily through one-sixty-fourth inch choke on tubing. It was bottomed at 3,358 feet in pay and with no water showing, but was plugged back to 3,346 feet to keep shot from penetrating barren section below pay, topped at 3,235 feet. It was shot with 260 quarts from 3,234-3,346 feet, and was a completion.

The Vacuum pool was extended three-fourths mile northwest at Magnolia Petroleum Co. No. 1-J State, C NE SE section 22-17-34. It flowed 336 bbls. of oil in 24 hours through 35/64-inch choke on tubing after acidizing. Production was from pay topped at 4,626 feet, and it was a completion at 4,750 feet, total depth.

Phillips Petroleum Co. No. 2 New, C E half SE NE section 26-20-36, Monument district, Lea County, topped pay at 3,788 feet, was bottomed at 3,810 feet in lime, was acidized and flowed 151 bbls. of oil in six hours through open tubing.

The fourth Lea County completion of the week was at A. R. Eppenauer No. 1 Stuart, NW NE NE section 22-25-37, in the Langlie area. It topped pay at 3,290 feet, total depth 3,373 feet, and flowed 320 bbls. of oil daily.

Three completions in Eddy County were recorded Grayburg Oil Co. No. 11 Burch, NE NE SE section 19-17-30, Grayburg pool, flowed 103 bbls. of oil daily from pay topped at 3,220 feet, total depth 3,262 feet in lime.

Repollo Oil Co. No. 4-D McIntyre, NW NE NE section 21-17-30, Jackson pool, found pay at 3,223 feet, total depth 3,262 feet, and flowed 127 bbls. of oil daily.

Neil Wills and others No. 2-A State, C E half SE NE section 19-20-30, had oil showing at 1,635 feet, but sulfur water intruded at 1,650 feet, total depth, and it was plugged and abandoned.

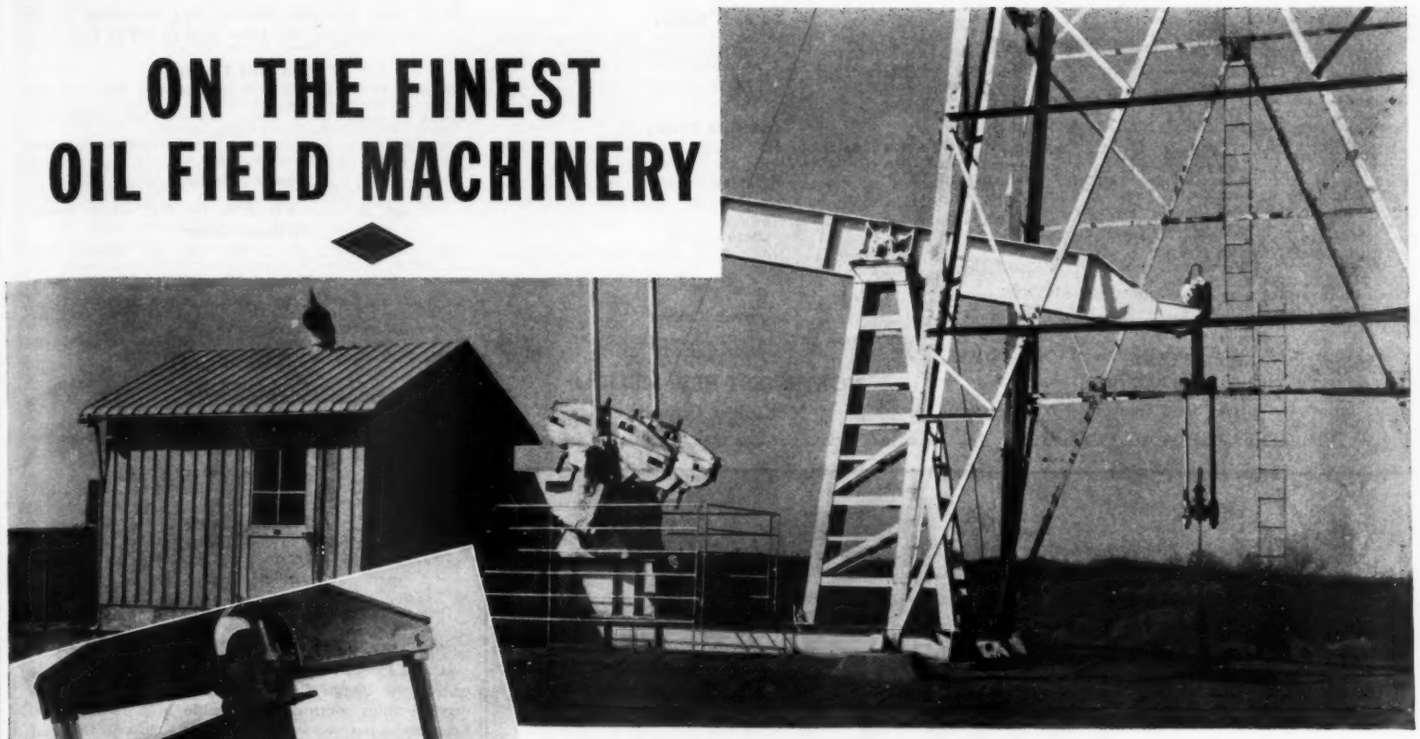
Lea County

Amerada Pet. Corp. No. 6 Byrd, SE sec. 12-20-36. Loc.
Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. T.D. 2,855 ft.; set 8-in. 2,573 ft.
Amerada Pet. Corp. No. 1 State VA, C SE SW sec. 23-17-34. T.D. 4,740 ft.; F. 426 B.P.D. through ¾-in. ck.; to acd.
Amerada Pet. Corp. No. 1 State VB, C NE SW sec. 36-17-34. Drlg. 4,240 ft.; S.S.O.
Amerada Pet. Corp. No. 1 Frances Stuart, NE NW NE sec. 22-25-37. T.D. 1,110 ft.; W.O.C.
Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. Drlg. 3,420 ft.
Anderson-Prichard Oil Corp. No. 4 Langlie, NE SW NE sec. 8-25-37. Drlg. 1,330 ft.; cmtg.
Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-27-37. Drlg. 3,610 ft.
Anderson-Prichard Oil Corp. No. 2 Wells, C SW SE sec. 5-25-37. Loc.
Bradley Oil Co. No. 1 Downes, SE NE SE sec. 5-22-37. Drlg. 3,680 ft.; F. by heads est. 15 B.O.P.D.
Cities Service Oil Co. No. 3-A Closson-A, C NE SE sec. 18-22-36. T.D. 3,542 ft.; fsg.
Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 3,584 ft.; prep. to deepen.
Continental Oil Co. No. 1-B-15 Britt, C W½ NW NW sec. 15-20-37. Drlg. 560 ft.
Continental Oil Co. No. 2-A-20 Jack, C SE SE sec. 20-24-37. Drlg. 400 ft.
Continental Oil Co. No. 1-A-31 Marsh, SE sec. 31-20-39. Wildcat; T.D. 4,346 ft.; fsg.
Continental Oil Co. No. 4 Reed B-23, C E½ NW NE sec. 23-20-36. T.D. 250 ft.; W.O.C.
Continental Oil Co. No. 4-E-17 State, C SW NW sec. 17-22-36. Drlg. 847 ft.
Continental Oil Co. No. 1-F-1 State, C SW SW sec. 1-21-36. T.D. 3,935 ft.; P.B. 3,838 ft.; 396,000 ft. gas; tstg.
Continental Oil Co. No. 1-G-12 State, C SE SW sec. 12-18-35. Drlg. 4,750 ft.; L.; tstg.
Continental Oil Co. No. 1-H-35 State, C SE NE sec. 35-17-34. Drlg. 4,608 ft.; tstd. 65 B.O. in 12 hrs.
Continental Oil Co. No. 1-I-16 State, C NW NW sec. 16-18-35. Drlg. 3,401 ft.
Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.
Culbertson & Irwin No. 3 Alston, NE cor. sec. 27-25-37. T.D. 3,140 ft.; cmtg.
Culbertson & Irwin No. 6-A Humphrey, NE SW SE sec. 3-25-37. T.D. 1,327 ft.; W.O.C.
Danglade & Clower No. 1 Currie, NE NE SW sec. 6-21-37. Drlg. 3,760 ft.; 1,000 ft. O.I.H. in 3 hrs.
Danglade & Clower No. 1 Giler, C SW NE sec. 32-22-37. T.D. 3,680 ft.; C.O.; flows by hds.; est. 75 B.O.P.D.
L. E. Elliott No. 2 Elliott, NE NW SE sec. 26-20-36. Drlg. 2,890 ft.
A. R. Eppenauer No. 1 Stuart, NW NE NE sec. 22-25-37. T.D. 3,373 ft.; flwd. 15 B.O.P.H. at 3,321 ft.
J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 3,700 ft.
Geo. F. Getty, Inc., No. 2-F State, C NW NE sec. 36-17-34. Drlg. 4,639 ft.; cmtg.
Gulf Oil Corp. No. 1 Ailey, C NE SE sec. 10-23-37. Drlg. plug; new S.T.
Gulf Oil Corp. No. 7-F Bell, C SW NW sec. 36-20-36. T.D. 3,855 ft.; cmtg.
Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; tstg.
Gulf Oil Corp. No. 2-D Kutter, C SE SW sec. 8-19-37. T.D. 4,155 ft.; tstg.
Gulf Oil Corp. No. 4-C Kutter, C SW NW sec. 18-19-37. T.D. 1,330 ft.; W.O.C.
Gulf Oil Corp. No. 1-D Mattern, SW sec. 6-22-37. T.D. 3,795 ft.; P.B. 3,775 ft.; C.O.; swbd. 33 B.O.P.D.
Gulf Oil Corp. No. 4 McCormack, C SW SE sec. 32-21-37. Drlg. 3,375 ft.; L.
Gulf Oil Corp. No. 2 Ramsey, C SW SW sec. 27-21-36. T.D. 3,895 ft.; P.B. 3,871 ft.; C.O.
Gulf Oil Corp. No. 1 J. Whitten, SE SE SW sec. 33-23-36. T.D. 3,666 ft.
Humble O. & R. Co. No. 3-H State, C NW NW sec. 34-22-37. Drlg.
Humble O. & R. Co. No. 3 Williams, C SW NW sec. 34-24-37. T.D. 3,532 ft.
Inter-Coast Pet. Co. and J. C. Clower No. 1 State, SW cor. sec. 2-23-37. Drlg. 3,465 ft.
Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-37. T.D. 3,029 ft.; tstg.
Carl B. King No. 1-A Stuart, NW NE NW sec. 14-25-37. T.D. 3,395 ft.; S.I.
Magnolia Pet. Co. No. 1 Brunson-Argo, C NW NE sec. 9-22-37. Drlg. 2,675 ft.
Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.
Magnolia Pet. Co. No. 2-K State, C NE SE sec. 31-17-35. Drlg. 2,060 ft.
Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. T.D. 4,593 ft.; flwd. 51 B.O. in 1 hr. naturally.
Magnolia Pet. Co. No. 3 State-Bridges, C NE NW sec. 26-17-34. Drlg. 2,220 ft.
Magnolia Pet. Co. No. 4 State-Bridges, C NW NE sec. 26-17-34. Drlg. 4,710 ft.; L.
Magnolia Pet. Co. No. 5 State-Bridges, C NE NW sec. 26-17-34. Drlg. 4,035 ft.
Magnolia Pet. Co. No. 6 State-Bridges, C SW NW sec. 23-17-34. R.U.R.
Maljamar O. & G. Co. No. 9 Baish, C NW NW sec. 21-17-32. Drlg. 245 ft.
Jas. A. Mascho No. 2 Cloyd, C SW SW sec. 20-22-33. Loc.
C. T. McLaughlin No. 1 Polhamus, NE sec. 9-24-37. T.D. 3,672 ft.; S.D.O.
National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; drlg. 3,710 ft.
Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 18-19-37. Drlg. 3,625 ft.
Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; C.O.
Ohio Oil Co. No. 10 State-McDonald, C NE SW sec. 16-22-36. Drlg. L. 3,252 ft.
Ohio Oil Co. No. 1 State-Staplin, C SE SW sec. 30-17-35. Drlg. 4,608 ft.
Ohio Oil Co. No. 2 State-Warn, C NE SW sec. 31-17-35. Drlg.
Parker Drlg. Co. No. 1 Irwin, C W½ SW SW sec. 35-24-37. Drlg. 3,452 ft.; 20 B.O.P.D. at 3,424 ft.
Paton Bros. No. 2 Wilkinson, C SE SE sec. 8-18-31. Loc.
Lem Peters No. 1 May, C NW SE sec. 27-22-37. Drlg. 485 ft.
Phillips Pet. Co. No. 2 Santa Fe, C SW SE sec. 30-17-35. T.D. 4,685 ft.; acd.; swbg.
Phillips Pet. Co. No. 3 Santa Fe, C SW NW sec. 5-18-35. Rig.
Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.
Repollo Oil Co. No. 4 Moseley, SW SE NE sec. 34-24-37. T.D. 3,420 ft.; est. 100 B.O.P.D.
Repollo Oil Co. No. 1 State, SE cor. sec. 6-17-34. Drlg. 3,600 ft.
Repollo Oil Co. No. 2-B State, NE SE NW sec. 7-22-36. R.U.R.
Repollo Oil Co. No. 3-B Whitten, NE SE NE sec. 4-24-36. T.D. 3,640 ft.; cmtg.
Harry J. Schafer No. 1-A State, C E½ NW NE sec. 26-20-36. T.D. 1,240 ft.; cmtg.
Shasta Oil Co. No. 2 Woolworth, NE NW NW sec. 28-24-37. T.D. 3,015 ft.; fsg.
Shell Pet. Corp. No. 1-A State, NE cor. sec. 33-18-36. Drlg. 5,266 ft.; S.S.O.
Shell Pet. Corp. No. 1-A State, C NW NE sec. 31-17-35. Drlg. 4,465 ft.
Shell Pet. Corp. No. 2-A State, C SW NE sec. 31-17-35. Drlg. 3,730 ft.
Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 3,800 ft.
Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,620 ft.; tstg.
Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; C.O.
Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,688 ft.
Skelly Oil Co. No. 1-E W. P. Sims, C NW NE sec. 10-23-37. T.D. 3,625 ft.; flwd. 452 bbls. in 24 hrs.
Southern Pet. Explo. Co. No. 2 Downes, C SW SW sec. 32-21-37. Drlg. 1,565 ft.
Stanolind O. & G. Co. No. 14-A Gilluly, C SW NW sec. 24-20-36. T.D. 3,790 ft.
Stanolind O. & G. Co. No. 2-A Hill, C NE SE sec. 6-21-37. T.D. 318 ft.
Stanolind O. & G. Co. No. 3-C Hill, C NW NW sec. 5-21-37. Drlg. 2,955 ft.
Stanolind O. & G. Co. No. 5-B Myers, C NE SW sec. 9-24-37. Loc.
W. H. Street No. 4 Woods, C NE NE sec. 22-22-37. Drlg. 1,780 ft.
Texas Co. No. 3 Black, C NW NE sec. 21-24-37. T.D. 105 ft.; S.D.W.
Texas Co. No. 1 Corbin, C NW SW sec. 19-18-33. Drlg. 5,100 ft.; 2,500 ft. O.I.H. every 24 hrs.
Texas Co. No. 4 Fristoe, NW NE SE sec. 3-25-37. Drlg. 630 ft.
Texas Co. No. 1-N State, C SW SW sec. 30-17-35. T.D. 4,110 ft.; W.O.C.
Texas Co. No. 1-O State, C SW NW sec. 36-17-34. Drlg. 4,572 ft.
Texas Co. No. 2-O State, C SE NE sec. 36-17-34. T.D. 225 ft.
Texas Co. No. 1-P State, C NW SE sec. 7-18-35. Drlg. 1,425 ft.
Texas Pacific C. & O. Co. No. 10-A State, Acct. 2, C W½ SW SW sec. 8-22-36. Drlg. 3,545 ft.
Texas Pacific C. & O. Co. No. 11-A State, Acct. 2, C SE NE sec. 7-22-36. Drlg. 2,630 ft.
Sam Weiner No. 1 Smith, NE cor. sec. 4-25-37. T.D. 1,385 ft.; set 8⅝-in. csg.
Weiner No. 1 Parcell, C SW NE sec. 8-23-28. Drlg. 400 ft.
Western Gas Co. No. 1 Curry, C SE SE sec. 1-24-36. Drlg. 2,480 ft.
Western Gas Co. No. 1 Matkins, C SE SE sec. 15-23-36. Cg. 3,579 ft.; L.

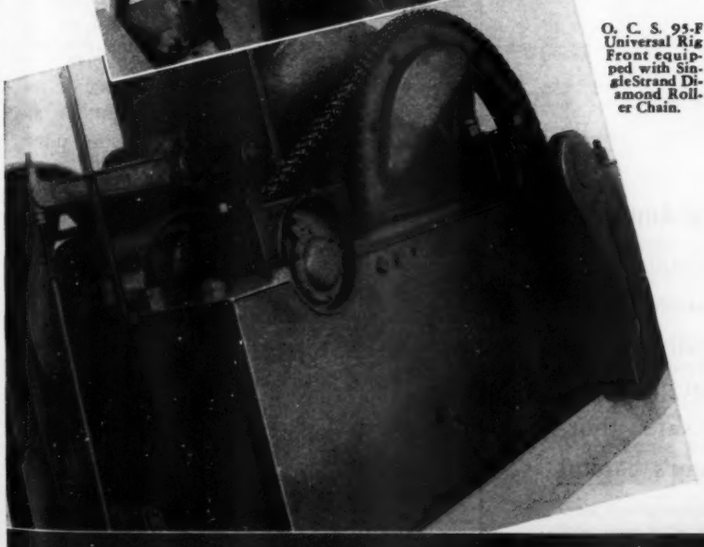
Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-27. T.D. 2,117 ft.; S.D.O.
Barnett Oil Dev. Co. No. 1 King Permit, C NW SE sec. 23-26-30. T.D. 980 ft.; S.D.
Carper Drlg. Co. No. 3 Gissler, C E½ E½ NW sec. 23-17-30. Drlg. 3,050 ft.; show gas 2,957-61 ft.
Danciger O. & R. Co. No. 4-A Turner, C SW SW sec. 18-17-31. Drlg. 2,552 ft.
Danciger O. & R. Co. No. 1-B Turner, CEL NE SE sec. 17-17-31. Loc.
D. & B. Oil Co. No. 3 Jenkins, NE NE NW sec. 20-17-30. Drlg. 350 ft.
Emperor Oil Co. No. 4 Puckett, C NE NE sec. 24-17-31. Drlg. 3,901 ft.; swb. est. 10 B.O.P.D. while drlg.
Emperor Oil Co. No. 5 Puckett, C SW NE sec. 24-17-31. Drlg. 3,722 ft.; swb. 35 B.O.P.D. while drlg.
Finley & Cherry No. 1 Buchley, C NW NW sec. 28-16-31. Wildcat; T.D. 3,750 ft.; S.D.
Flint Prod. Co. No. 1-B State, SE sec. 20-17-30. Drlg. 3,830 ft.
C. J. Frederick No. 1 Reed, C NE SW sec. 28-24-28. Drlg. 2,323 ft.
F. W. & Y. Oil Co. No. 8-A Gissler, NE NW NE sec. 23-17-30. T.D. 3,237 ft.; fsg.
F. W. & Y. Oil Co. No. 9-A Gissler, C SE NE sec. 14-17-30. Drlg. 3,240 ft.
F. W. & Y. Oil Co. No. 1-B Gissler, SW sec. 14-17-30. T.D. 3,492 ft.; to acd.
F. W. & Y. Oil Co. No. 2-B Gissler, C NW NW sec. 24-17-30. C.O. 3,495 ft.; swb. and flwd. 120 B.O.P.D.
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fsg.
Grayburg Oil Co. No. 4 Keely, SE SW NE sec. 24-17-9. T.D. 3,588 ft.; to test.
H. A. Hartwell No. 1 Vandagrift, NE NE SE sec. 8-18-27. T.D. 2,000 ft.; S.D.O.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 1,980 ft.; tstg.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. T.D. 1,495 ft.; S.D. for new rig.
B. M. Koehane et al No. 1 Shannon, SE cor. sec. 27-16-31. Drlg. L. 3,905 ft.
Paul Moran No. 1 Crawford & Smith, NW NW SW sec. 24-24-26. T.D. 1,084 ft.; S.D.O.
Murchison & Closuit No. 1 Foster, SE NE SE sec. 17-17-31. T.D. 3,000 ft.; rng. csg.
Murchison & Closuit No. 2-A State, NW SE SW sec. 16-17-31. Drlg. 3,360 ft.; S.S.O. at 3,180 ft.

ON THE FINEST OIL FIELD MACHINERY



O. C. S. Double Reduction Pumping Unit equipped with Multiple Strand Diamond Roller Chain.



O. C. S. 95-F Universal Rig Front equipped with SingleStrand Diamond Roller Chain.

Higher Potentials and Greater Production with DIAMOND ROLLER CHAIN EQUIPPED O.C.S. PUMPERS

In May 1937 the highest potential ever taken in Kansas up to that time (3245 barrels) was produced by a 40 HP Double Reduction Pumping Unit manufactured by the Oil Country Specialties Mfg. Co. of Coffeyville, Kansas.

Producing high potentials is an important recommendation for a pumping unit but even more important is the day after day record of lifting more oil economically and with the minimum of care and attention. O. C. S. pumping units are giving reliable and dependable service 24 hours a day on hundreds of wells—including the toughest ones—in the Mid-Continent and California fields.

Diamond Roller Chains were used on the pumper that set the Kansas record and are standard equipment on all of the several sizes and capacities of pumping units and other types of oil field machinery made by O. C. S. It will pay you to use Diamond Roller Chains on your equipment.

DIAMOND CHAIN & MFG. CO.

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DIAMOND ROLLER CHAIN

Pecos Valley Gas Co. No. 1 Sappenfield, C SE SE sec. 4-16-28. Drlg. L. 2,364 ft.
Premier Pet. Co. No. 1 Beeson, NE SE SE sec. 28-17-30. Drlg. 2,920 ft.
Red Gulch Oil Co. No. 2 Keyes, C SW SE sec. 4-17-28. Drlg. 1,160 ft.
Repollo Oil Co. No. 2-C McIntyre, NE cor. sec. 20-17-30. Drlg. 2,733 ft.; S.S.O.
Repollo Oil Co. No. 2-A Parke, NW NW NE sec. 22-17-30. Drlg. L. 3,175 ft.
Repollo Oil Co. No. 1-B Parke, SW cor. sec. 15-17-30. T.D. 3,270 ft.; acd. and flwd. 90 B.O. in 10 hrs.
Paul Sarget No. 1 State, NE sec. 16-17-31. T.D. 3,749 ft.; P.B. 3,745 ft.; tstg.
R. A. Shugart No. 1 Coulthard, C NW SW sec. 35-18-31. C.O. 3,500 ft.; swb. 85 B.O.P.D.
W. K. Royalty No. 2 State, C NW NE sec. 16-17-31. T.D. 3,366 ft.; swb. 40 B.O.P.D.
W. O. Snyder No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. T.D. 3,330 ft.; S.D.O.
Western Drlg. Co. No. 1-A Western, SE SW NW sec. 23-17-29. Drlg. 1,418 ft.

Chaves County

E. J. Fisher No. 1 Etz Permit, NE sec. 23-7s-26. T.D. 1,610 ft.; S.D.R.
Grastorf & Caudill No. 1 Smith, C NE NE sec. 1-4s-29. Wildcat; T.D. 680 ft.; S.D.O.
Interstate Minerals, Inc., No. 1 Dunigan, NW cor. sec. 15-15-30. Loc.
J. & L. Drlg. Co. No. 2 Hurd, SW sec. 11-11-26. T.D. 1,000 ft.

De Baca County

Land Owners Oil Co. No. 1 McAdoo, SW cor. sec. 16-1s-7e. O.W.; prep. to deepen from 5,850 ft.; S.D.
James D. Ward No. 1 Summers, NW NE SW sec. 17-4n-20. T.D. 260 ft.; S.D.
N. F. Woods No. 1 Jones, C NE SW sec. 17-4n-20. T.D. 25 ft.; S.D.

Dona Ana County

Jules C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dysart No. 1 Govt., NE sec. 14-14-10w. T.D. 1,390 ft.; fsg.

Otero County

Fred Turner, Jr., No. 1 Ella Everett, C SE SE sec. 34-22-13. Drlg. 3,000 ft.
Fred Turner, Jr., No. 1 H. V. Everett, SE SE sec. 28-22-13. Drlg. 1,700 ft.

Roosevelt County

C. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. T.D. 623 ft.; S.D. for csg.

NORTHWEST NEW MEXICO

McKinley County

Claude Walker No. 6 fee, SE SW SE section 20-20n-9w, Red Mountain district, was completed at 455 feet for 5 bbls. per day from sand at 437-42 feet.

San Juan County

Continental Oil Co. No. 74 Rattlesnake, CEL SE NE sec. 2-29n-19w. Drlg. 245 ft.
Frank Lischke No. 1 Abreo, SW SW sec. 27-30n-11w. Drlg. 400 ft.; (formerly Calif. Synd.).
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. Drlg. in sh. below 1,900 ft.

Socorro County

Central New Mexico Oil Co. No. 1 Belen Ld. Grant, NW sec. 16-3n-1e. T.D. 2,700 ft.; R.U. addnl. power.

Torrance County

Chief O. & G. Co. No. 1 Pace, SE sec. 12-6n-7e. T.D. 2,020 ft.; fsg.

Valencia County

Old Spanish Grants, Inc., No. 1 San Clemente, C SE SW sec. 23-7n-1e. Contr. to Wm. Hix to drill for acreage spread; M.I. rotary.
C. A. Grober et al No. 1 Fuqua, NE NE sec. 19-5n-3e. T.D. 900 ft.; bldg. steel drk. for rotary.

COLORADO

Archuleta County

Pagosa Oil & Dev. Co. No. 1 Macht, S sec. 32-36n-1w. Set 10-in. at 675 ft.; drlg. ahead.

Cheyenne County

Gulf Oil Corp. No. 1 Union Pacific-Larsen, C SE NW sec. 13-13s-49w. Drlg. 4,924 ft.

Fremont County

Isadore Spangler No. 1 St. Mary's, SE SE SE sec. 2-19s-70w. Drlg. 1,500 ft.

LaPlata County

N. Spatler No. 1 Bryce, SE SW SW sec. 31-33n-9w. Drlg. below 1,510 ft. after sdtrkg. tools.

Pueblo County

C. E. Puckett and associates began spudding in a test in the Boggs Flats district, on the Beulah Highway 10 miles southwest of Pueblo in a 12-inch hole. Location is not yet available, but it is just to the west of a well drilled in 1923 on the Drobnick ranch in section 32-21s-65w, which went to 1,065 feet. It had the top of the Morrison at 844 feet and had shows of oil in green sand at 950 feet, 962 feet and 969 feet and made sufficient gas to furnish a domestic supply for the ranch. The area has attracted considerable attention in the past. The San Carlos Oil & Refining Co. drilled to 1,060 feet in section 35-22s-65w. The Union Oil Co. of California drilled to 1,102 feet in section 30-21-65 in 1924 and had a small show of oil and gas at 910-20 feet.

WYOMING

Big Horn County

Prescott & Mileski No. 1 Govt., NE NW SW sec. 1-51n-93w. Drlg. 527 ft.
Clifford S. Johnson No. 1 Johnson, CEL NW NW sec. 24-51n-93w. Rig; (cor.); W.O. engine.
Joan Oil Co. No. 1 Howell, NE NW NE sec. 32-55n-97w. T.D. 2,360 ft.; will test good show grn. oil at 2,357-60 ft.

Carbon County

The Sinclair-Wyoming Oil Co. No. 12-B Wertz, SE NW NW section 7-26n-89w, Wertz dome, reported a completion last week at 5,770 feet, was deepened to 5,807 feet and made 30 to 35 bbls. an hour of pipe line oil and no water. Production is from the Tensleep topped at 5,747 feet.

Wyco Oil Co., Inc., No. 1 Union Pacific, NE SE NE sec. 3-23n-79w. Rdy. to spd.
Ohio Oil Co. No. 3 Hazlett Est., NE SW SE sec. 34-23n-79w. Spdg.
Ohio Oil Co.-California Co. No. 3 State-Griffin, C SW NW sec. 36-21n-79w. Drlg. 219 ft.; spd. Apr. 9.

Fremont County

Sinclair-Wyoming Oil Co. No. 2-B Muskrat, NW NW NE sec. 4-33-92w. Drlg. below 4,534 ft.; nominal gas in test of Frontier.
Stanolind O. & G. Co. No. 1 Govt., C SE SE sec. 3-33n-96w. Cg. 8,526 ft.; top Sundance 8,490 ft.
Consolidated Oil Properties No. 3 Ewart, C SW SE sec. 16-1n-14w. T.D. 700 ft.; rng. form. test.
Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. Drlg. 1,482 ft.
Nelson et al No. 2 Enos, SW NE SW sec. 27-3n-1w. Drlg. 780 ft.; (C.D.).
Tropic Oil Co. No. 1 Govt., C SE SW sec. 34-27n-90w. Drlg. sh. 3,318 ft.

Hot Springs County

Delaware Oil Co. No. 1 Govt.-Skelton, C SE SE sec. 2-43n-96w. Drlg. 628 ft.; top Tensleep 330 ft.; top Amsden 575 ft.
J. W. Bales No. 1 Govt., CWL SE SW sec. 28-43n-93w. P.B. from 1,082 ft. to 1,015 ft.; prep. to acd.

Natrona County

Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE SW sec. 26-40n-79w. C.&P.
Western Producers, Inc., No. 1 Govt., NW SW SE sec. 5-39n-78w. Drlg. 1,156 ft.
Stanolind O. & G. Co. No. 8 T.P.-Midwest Oil, C NW SW sec. 35-40n-79w. Loc.; W.O. compl. No. 26.
Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE NW sec. 35-40n-79w. Drlg. 1,917 ft.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. Cg. 7,484 ft.

Niobrara County

The Continental Oil Co. had two good completions in the Lance Creek field, one in the Sundance and

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General American terminals give you the extra advantages of independent ownership. We know how to keep business confidences. Another reason why so many internationally known businesses have confidence in us. General American gives you all the privacy of your own terminal—completely safe—thoroughly modern, equipped for speed—without a penny's capital investment on your part.

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A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION

Goodhope, La. (Port of New Orleans) Westwego, La. (Port of New Orleans) Carteret, N. J. (Port of New York) Galena Park, Tex. (Port of Houston) Corpus Christi, Texas

the other in the Minnelusa. Its No. 3-A Diehlman, SE SE SW section 5-35n-65w, an important extension to the southeast in the Minnelusa, made 68 bbls. an hour through the tubing at 5,404 feet, total depth, and is rated at 1,600 bbls. per day. The ratio was 250 feet of gas to 1 bbl. of oil. The 7-inch is at 5,342 feet and the Leo was logged at 5,343-5,404 feet. Elevation is 4,464 feet. It is half a mile southwest of the Ohio Oil Co. No. 10 Lamb, the nearest Leo sand producer in that direction and nearly a mile east of the nearest deep sand wells on the west side.

The other completion was Continental Oil Co. No. 5 Joss, SW SW NE section 6-35n-65w, on the west side just inside the Sundance pool area. It made 58 bbls. an hour through the tubing at 3,950 feet, total depth. The 8⅝-inch was cemented at 3,869 feet and the basal Sundance was at 3,861-3,942 feet. Elevation 4,413 feet.

Continental Oil Co. No. 12 Tom Bell, C SE SE sec. 33-36n-65w. M.I. rig.
A. B. Cobb et al No. 3 Novick-Ong, SW SE SW sec. 6-35n-65w. Drlg. 2,833 ft.
MacKinnie Oil & Drlg. Co. No. 3 Thompson, NW NE NW sec. 7-35n-65w. Drlg. 3,581 ft.
Minnelusa Oil Co. No. 2 H. & M., NW NE NE sec. 8-35n-65w. R.U.R.
Continental Oil Co. No. 11 Tom Bell Cattle, SE SW SW sec. 27-36n-65w. Drlg. 4,019 ft.; top Sundance 3,950 ft.
Hewitt Bros. and Manning No. 1 Pecklow, SE SE SE sec. 1-35n-66w. Drlg. 1,630 ft.
Ohio Oil Co. No. 10 Putnam, NW SE NW sec. 4-35n-65w. Cg. 4,064 ft.; top Sundance 3,945 ft.
Argo Oil Co. No. 5 Ford, C SW SE sec. 33-36n-65w. T.D. 4,076 ft.; tstg.
H. D. Moore et al No. 1 Beregren, NW sec. 23-35n-63w. Drlg. in Sundance 937 ft.; top Morrison 587 ft.

Park County

Paul Stock No. 1 Govt., SE SE NE sec. 20-53n-101. Rdy. to resume at 2,015 ft.
Ohio Oil Co. No. 4 Mack-O.P.C.-4, SE SW SE sec. 30-58n-99w. T.D. 3,092 ft.; P.B. to 2,850 ft.; cmtd. 8⅝-in. at 2,790 ft.; tstg.
Resolute Oil Co. No. 4 N. P., C NE NW sec. 21-57n-101. S.D. 8,657 ft.
Resolute Oil Co. No. 3 N. P., C NE NE sec. 20-57n-101. S.D. 8,670 ft.

Platte County

Transylvania Dev. Co. No. 1 Bellis, SE SE SE sec. 3-24n-68w. M.I.M.

Sublet County

Major Oil Dev. Co. and Wyoming Pet. Corp. No. 1 Chas. Budd, C NE NE sec. 10-29n-113w. R.U.
Major Oil Dev. Co. and Wyoming Pet. Corp. No. 1 Henry Budd, C SE SE sec. 6-30n-112w. R.U.

Sweetwater County

Sinclair-Wyoming Oil Co. No. 78, SW SW NW sec. 11-26n-90w. Drlg. r.b. 2,557 ft.
Selegna Oil Co. No. 1 Union Pacific, SW SW sec. 11-20n-104w. Drlg. 4,200 ft.

Washakie County

Wyoming O. & R. Co. No. 10-B Brome, C SE NE sec. 6-47n-90w. Drlg. 150 ft.

Weston County

Chas. F. Martens No. 9, NE SW NE sec. 23-46n-64w. Tstg. W.S.O. with 8¼-in.
Chas. Stough No. 11, CSL SW NW sec. 4-46n-63w. Drlg. below 100 ft.
Osage Trust Co. No. 29, NW SE SW sec. 14-46n-64w. Cmtd. 8¼-in. at unreported depth.
John Brorphy No. 1 George, SW SE NW sec. 26-48n-64w. Recmtd. 6⅝-in. at 3,012 ft.

MONTANA

Big Horn County

P. O. Oil & Gas Co. No. 1, NW NE NE sec. 25-9s-35e. Drlg. 340 ft.
E. L. Dana No. 1 Hardy, SW NW sec. 22-9s-35e. S.D. 700 ft.

Carbon County

R. C. Tarrant No. 1, 500 ft. W of C sec. 3-6s-18e. Drlg. 140 ft.
R. C. Tarrant No. 2 Heare, NW SE NW sec. 14-6s-19e. T.D. 1,700 ft.; drlg. by tools.
Sha-Wa Pet. Co. No. 1 Govt., SW SW NE sec. 35-9s-23e. T.D. 3,223 ft.; P.B. to 3,060 ft.; fsg.
Miracle Oil Co. No. 2 Govt., CWL NE SE sec. 3-6s-23e. Drlg. 2,371 ft.; 5½-in. at 2,360 ft.

Fergus County

Baugham & Singley No. 1 Skaggs, C NW SW sec. 7-15n-20e. S.D. 525 ft.

Glacier County

Nadeau Bros. No. 5 Farmers State Bank, CEL SE NE sec. 17-33n-5w. Drlg. 1,110 ft.; Colo. 555 ft.; 10¾-in. 608 ft.
Glacier Prod. Co. No. 2 Eisler, SW NE SW sec. 5-33n-5w. R.U.
Santa Rita O. & G. Co. No. 1 Jordan, NW NW SE sec. 18-32n-5w. Spdg.
K. D. Pardee No. 1 Drumheller, NE NW (C Lot 3), sec. 2-33n-6w. Spdg. 160 ft.
Texas Co. No. 1 Lindquist, C SE SE sec. 17-32n-5w. Drlg. 2,845 ft.
A. B. Cobb No. 1 State, C NE NE sec. 30-37n-4w. T.D. 2,592 ft.; S.D. until spring.
Santa Rita O. & G. Co. No. 3 Govt., C SW SW sec. 4-32n-5w. T.D. 3,020 ft.; 950 ft. oil from Cut Bank at 2,984-3,012 ft.; prep. to swb.

Hill County

Burton & Hole No. 1 Waldrip, C SW NW sec. 12-32n-17e. Drlg. 631 ft.

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15e. Drlg. 1,875 ft.

Lewis and Clark County

Lewis & Clark Oil Synd. No. 1 Heilman, NW NW SW sec. 11-18n-5w. T.D. 2,135 ft.; (C.D.); cmtd. 8¼-in. on bttm. for W.S.O.

Park County

Ben W. Ryan No. 1 Burgee, SE SW NW sec. 28-2s-11e. Drlg. 1,278 ft.

Toole County

The Superior Petroleum Co. No. 7-A Government, NE NW NW section 12-35n-3w, Kevin-Sunburst field, is pumping 68 bbls. per day at 1,597 feet, total depth, and is expected to settle to around 40 bbls.

R. G. Parrant No. 1 Anderson, C SW SE section 26-35n-4w, to the west of Kevin-Sunburst, is pumping 7 to 8 bbls. per day from the Ellis at 2,027-34 feet, with some water showing. It will be reacidized.

Deloraine Oil Synd. No. 3 Solberg, SE SW NE sec. 29-35n-3w. Spdg. 40 ft.; (first report).
Big West Oil Co. No. 7 Gunderson, CWL NE NW sec. 19-35n-2w. T.D. 1,530 ft.; cmtd. 7-in.; W.O.C.
Chas. Grant et al No. 1 Anderson, SE NE NE sec. 26-35n-4w. T.D. 2,107 ft.; top Sunburst 1,847 ft.; may acd.
West Kevin Community Lease, Inc., No. 1 McClary, SW NE NW sec. 3-34n-4w. T.D. 1,800 ft.; C.O. and lowering 8¼-in.

Yellowstone County

Broadview Dome Oil Co. No. 1 Stallinberger, NE NE SW sec. 18-3n-23e. S.D. 4,565 ft.

Riverton Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. T.D. 1,795 ft.; cmtd. 8¼-in. on bttm.; R.U.S.T.
R. C. Tarrant No. 3 Sayre, SE NE SW sec. 26-3s-24e. Drlg. 100 ft.; (first report; Mosser dome).

UTAH

Daggett County

Mountain Fuel Supply Co. No. 3-B Murphy, NW NW SW sec. 23-3n-24e. T.D. 323 ft.; prep. to res.

Grand County

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. T.D. 6,715 ft.
Columbia Crude Corp. No. 1 Rath, NW SW SE sec. 12-25s-20e. Drlg. 3,530 ft.
Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. Drlg. hd. L. 1,328 ft.
Crescent Eagle Oil Co. No. 1, SW SE sec. 4-22s-21e. O.W.D.D.; old T.D. 4,006 ft.; C.O. to bttm.

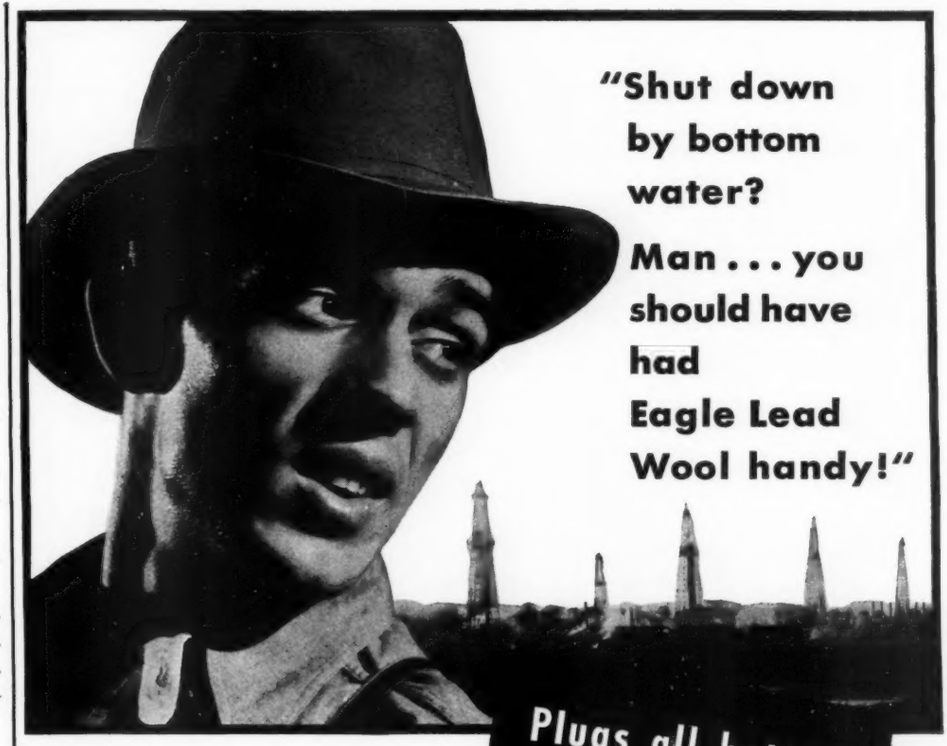
Summit County

Longwell Pet. Co. No. 1, SE SW SE sec. 35-3n-5e. Drlg. 2,775 ft.

NEBRASKA

Lincoln County

Smith & Wright No. 1 Hansen, C SW NW section



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• Bottom water comes quickly. You need lead wool right then. Every minute's delay means hours lost in costly shut-downs.

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• Eagle Lead Wool and Wire Containers are sold through recognized jobbers.

24-15n-31w, North Platte district, which has been standing at 2,806 feet since last fall, is drilling at 800 feet in a new hole on the same location to go to the Pennsylvanian. Helmerich & Payne, drilling contractors, and Joe D. Cook, of Denver, have acquired additional interests in the operation and are making a deep test with rotary. Old hole stopped in the top of the red beds.

Sioux County

Union Oil Co. of Calif. No. 1 Cook, NW SE SE sec. 15-28n-55w. M.I.M.

Gulf Coast Fields

(Continued from Page 82)

Smith, in section 44, perforated casting at 8,280-85 feet and showed salt water. The perforations have been cemented off and the next test is expected to be made at 8,275-93 feet. The main production in the field is found from 7,900 to 8,100 feet.

In the South Elton field, Jefferson Davis Parish, Stanolind Oil and Gas Co. and Amerada Petroleum Corp. No. 3-B Calcasieu National Bank, section 27-7s-3w, is preparing to perforate casing for a production test at 9,143-53 feet. The hole was recently plugged back from a total depth of 13,210 feet. In the same parish and located in the Woodlawn field, Union Sulphur Co. is preparing to test No. 2 Calcasieu National Bank. The hole is bottomed at 9,056 feet and casing is being cemented for a test of a sand logged at 8,456-8,520 feet.

On the Chacahoula Prospect, Lafourche Parish, Sun Oil Co. has made a location for a deep test on the Dilbert, Stark and Brown lease in section 70-15s-15e. Actual foot measurements are 1,650 feet east of the southwest corner of the section.

In the Horseshoe Bayou field, St. Mary Parish, Texas Co. is preparing to run casing in No. 1 St. Mary Parish Land Co., the second well to be drilled in the field. The hole is bottomed at 11,060 feet. Sand showing oil and gas was logged at intervals from 10,887 to 10,938 feet. Two deep wildcats in Terrebonne Parish being drilled by Fohs Oil Co. were being watched with interest. No. 1 Buckley-Bourg, southeast of Lake Ducade, section 77-19s-17e, is coring below 11,126 feet. Sand with an oil odor was logged at 9,064-68 feet. No. 1 State Bay Baptiste, section 41-19s-19e, southeast of the Lirette field is coring ahead at 9,581 feet after cementing a protection string of casing at 9,232 feet.

COMPLETIONS ON TEXAS COAST

Brazoria County

Hastings Field: Navarro Oil Co. and others No. 1-E W. F. Beers, sand 6,075-85 feet, 561 bbls., ¼-inch choke. Stanolind Oil and Gas Co. No. 20 Drake, 5,485 feet, 668 bbls., ¼-inch choke. Stanolind Oil and Gas Co. No. 17-A H. H. Ford, 6,125 feet, 127 bbls., ¼-inch choke. Stanolind Oil and Gas Co. No. 1 R. J. Schmidt, 6,080 feet, 577 bbls. ¼-inch choke. Stanolind Oil and Gas Co. No. 17 Shaw, 5,865 feet, perforated casing 5,762-94 feet, 594 bbls., ¼-inch choke. West Columbia Field: Texas Co. No. 4 T. L. Smith, 6,607 feet, plugged back 5,600 feet, 280 bbls., ⅝-inch choke, Texas Co. No. 7 J. G. Phillips, 6,377 feet, abandoned.

Chambers County

Cotton Lake Field: Humble Oil and Refining Co. No. 2 Casey, 6,518 feet, top oil sand 6,507 feet, 136 bbls., ⅛-inch choke.

Galveston County

Dickinson Field: Humble Oil and Refining Co. No. 1 Fream, 8,908 feet, abandoned.

Hardin County

Batson Field: Texas Gulf Producing Co., 3,374 feet, plugged back 2,975 feet, 204 bbls., $\frac{1}{16}$-inch choke.

Harris County

Friendswood Field: Humble Oil and Refining Co. No. 6 L. Beamer, sand 5,950-6,040, 26 bbls. per hour, ¼-inch choke. Humble Oil and Refining Co. No. 5 E. A. Grey, sand 5,886-6,040 feet, 26 bbls., ¼-inch choke. Humble Oil and Refining Co. No. 2 J. H. Roos, sand 5,975-6,051 feet, 581 bbls., ¼-inch choke. Tomball Field: Shell Petroleum Corp. No. 1 Stehly, 5,566 feet, 75 bbls. pumping. Amerada Petroleum Corp. and others No. 4 Metgler, 5,603 feet, gas well. Humble Oil and Refining Co. No. 6 Theis, 5,566 feet, 393 bbls., ¼-inch choke. Texas Co. No. 6 W. Sherer, 5,580 feet, 17 bbls. per hour, ¼-inch choke.

Jefferson County

LaBelle Field: Sun Oil Co. No. 3 Broussard, 8,622 feet, 1,066 bbls. distillate, flowing through three 2-inch flow lines.

Liberty County

Hardin Field: Jack Frazier No. 2 Lynott and Buffam, 7,659 feet, perforated casing 7,638-48 feet. 471 bbls., ¼-inch choke.

Orange County

Orange Field: Shell Petroleum Corp. No. 1 E. V. Loeffler, 5,967 feet, perforated casing 5,957-62 feet, 287 bbls., ¼-inch choke.

Eastern Fields

(Continued from Page 78)

Gas Co. is down 2,012 feet in the Della Lemley test in Clay district. Philadelphia Oil Co. had reached 650 feet in No. 5410 Stephen Tennant. In Marshall County C. E. Dague and F. Ebeling were shut down at 1,850 feet on the C. W. Dague farm in Sand Hill district.

In Ritchie County, William M. Schroeder, agent, made a location for No. 3 P. M. McGinnis in Grant district. McCall Drilling Co. has a rig up for No. 1 F. W. Smith. Reno Oil Co. is moving in to start No. 3 C. B. Rosson.

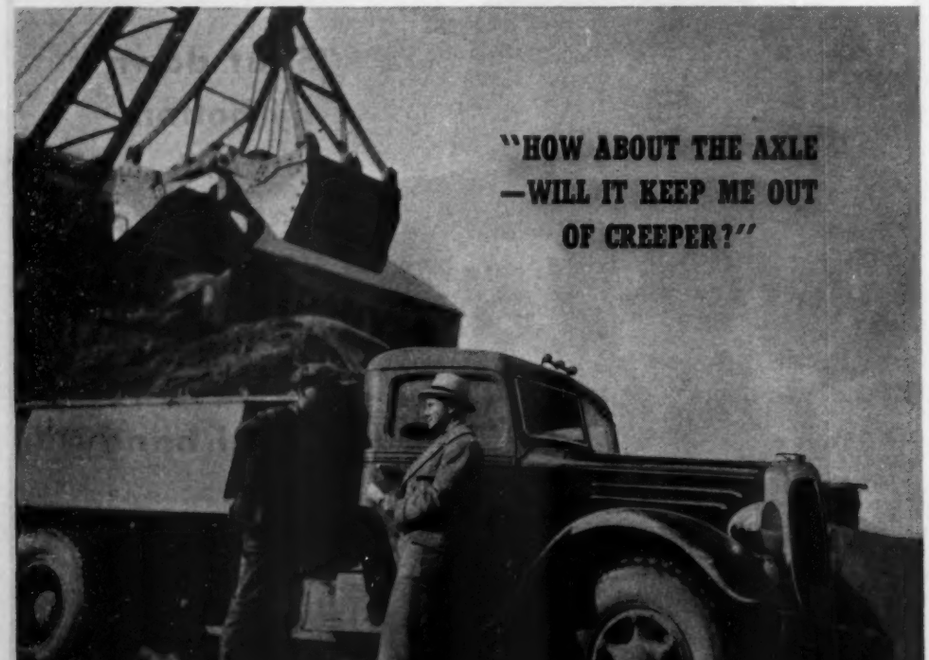
In Roane County, Clark and Koontz made a location on the R. K. Ogden farm in Geary district. United Fuel Gas Co. is rigging up No. 4798 Samuel W. Vineyard. O. H. Reed and others has started drilling the P. Y. Litton test in Harper district.

In Wayne County, R. J. Petrie made a location on the Lillie Gibson Tooley farm in Ceredo district. In Wirt County, Grover Whitecotton has a location for No. 3 Edgar West, Clay district, and S. W. Douglas one for No. 60 Al. Blankenship, Spencer district.

BUTLER TANKS

Butler bolted tanks are handled in Arkansas by H. G. Miller, located at El Dorado.

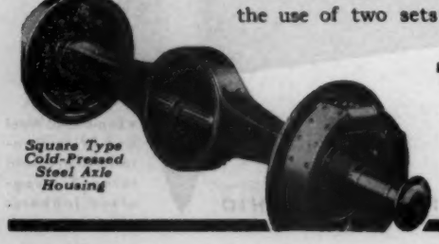
The address was incorrectly given as Eldorado, Kansas, last week in the Butler Manufacturing Company's advertisement.



Bevel Gear

Double Reduction

Two-Speed


Square Type Cold-Pressed Steel Axle Housing

Yes, If It's a TIMKEN DOUBLE REDUCTION AXLE

In and out of soft, uneven ground—hauling sand, gravel, coal, logs, building material—these jobs need slower rear axle gear ratios to turn engine power into pulling power. Timken-Wisconsin Double Reduction Drive Axles give you more pulling power with no extra strain on transmission or propeller shaft. And they have more "guts" to take it day in and day out, because gear tooth pressures are reduced in Double Reduction Axles by the use of two sets of rugged gears—assuring longer gear life. Insist on Timken Axles in every new truck or tractor you buy. *All three* types of final driving units are interchangeable. This 3-in-1 Housing makes it easy for you to shift—in a few hours—from Double Reduction to 2-Speed or Bevel Gear Drive. Permits you to fit your truck to the job, quickly and at low cost. Be sure that your new truck has a Timken Axle with this exclusive interchangeable final drive feature.

The Timken-Detroit Axle Co.
Detroit, Michigan

WISCONSIN AXLE DIVISION
Oshkosh, Wisconsin

Central West

By STAFF CORRESPONDENT

32 New Oil Wells Result of a Week's Work in Illinois Field

MATTOON, Ill., Apr. 18.—Thirty-two wells with a combined initial production of 10,959 bbls.; one gas well and two dry holes comprised the largest list of one week's completions central Illinois has had in its 15 months of progress. Twenty-five of the wells are in the shallow Centralia field in Clinton and Marion counties, and these produced 3,616 bbls. initially. Five completions in the McClosky deep pay in Richland County were good for 5,073 bbls., but three of them produced 1,913 bbls., 1,703 bbls., and 1,354 bbls., respectively. A 1,104-bbl. well in Clay County, a 1,166-bbl. well in Wayne County, and a shallow gasser in Macoupin County rounded out the productive list. The dry holes were wildcats in Richland and Clinton counties.

The Week's Completions

Completions with their sand records and initial production were as follows:

Macoupin County: American Petroleum Co. No. 1 Snedeker, 990 feet from east and 405 feet from south lines of SW quarter section 15-8n-8w, pay at 420-25 feet, 620,000 feet of gas.

Clay County: Pure Oil Co. No. 2 McKinney, C E half SW SW section 9-2n-8e, pay at 3,022-30 feet, 1,104 bbls., flowing.

Clinton County: Gulf Oil Corp. No. 1 Buehler, SE SW NW section 1-1n-1w, Benoist pay at 1,336-60 feet, estimated at 136 bbls.; Shell Petroleum Corp. No. 2 Buehler, SW SE SW section 1-1n-1w, 1,333-65 feet, 52 bbls., pumping; Shell No. 2 Koelmel, NW SW SW section 1-1n-1w, 1,335-58 feet, shot with 15 quarts, 98 bbls.; Shell No. 3 Koelmel, NE SW SW section 1-1n-1w, 1,311-43 feet, 104 bbls.; Shell No. 2 Pitchford, SW NE SW section 1-1n-1w, 1,314-39 feet, 70 bbls. of oil and 39 bbls. of water; Carter Oil Co. No. 2 Buehler, NW NE SW section 12-1n-1w, 1,368-88 feet, 111 bbls. of oil and 44 bbls. of water the first day, and 123 bbls. of oil and 25 bbls. of water the second day; Group 1 Oil Corp. No. 1 Beaver, SE corner SW section 12-1n-1w, 1,370-89 feet, 120 bbls.; B. L. Morrison, No. 1 Kesterson, SE SE SE section 12-1n-1w, 1,364-90 feet, 140 bbls.; A. B. Ryan, No. 1 Fortney, SE SE SE section 12-1n-1w, 1,365-84 feet, shot with 15 quarts, 180 bbls.; Shell Petroleum Corp. No. 3 Buehler, NW NE NW section 12-1n-1w, 1,349-74 feet, 54 bbls.; Shell No. 4 Beuhler, SW NE NW section 12-1n-1w, 1,344-74 feet, 87 bbls.; Thompson & Self No. 1 Hanseman, SE NW NE section 12-1n-1w, 1,362-82 feet, 140 bbls.; Adams Oil & Gas Co. No. 6 Hefter, SW corner NW NE section 13-1n-1w, 1,367-90 feet, shot with 15 quarts, 110 bbls.; Bailey and others No. 1 Veltman, NW SW SE NE section 13-1n-1w, 1,355-79 feet, shot with 15 quarts, 140 bbls.

In the city of Centralia, T. T. Eason & Co. No. 1 Huff, SW corner SW NE section 13-1n-1w, 1,352-71½ feet, 216 bbls.; T. T. Eason & Co. No. 1 Keller, SW corner SE NE NE section 13-1n-1w, 1,350-73 feet, 228 bbls. Geneseo Producers No. 1 Oestrick, SW corner SE NE section 13-1n-1w, 1,355-88 feet, shot with 80 quarts, 175 bbls. of oil and 50 bbls. of water; S. W. McGee No. 1 fee, NW corner SE NE NE section 13-1n-1w, 1,356-78 feet, shot with 60 quarts, 140 bbls.; J. D. Reynolds and others No. 1 Harrison, NE corner NE SE section 13-1n-1w, 1,352-79 feet, shot with 40 quarts, 240 bbls.; J. D. Reynolds No. 1 Heap, NE corner SE NE NE section 13-1n-1w, 1,358-81 feet, shot with 60 quarts, 150 bbls.; A. B. Ryan No. 1 Besant, SE NE NE SE section 13-1n-1w, 1,350-74 feet, shot with 15 quarts, 250 bbls. A. B. Ryan No. 1 Kate Kent, NE SE SE NE section 13-1n-1w, 1,358-82 feet, 200 bbls.; H. H. Weinert, No. 2 fee, NE SW NE NE section 13-1n-1w, 1,368-75 feet, 210 bbls.

Marion County: Centralia Townsite, Penn Oil & Gas Co. No. 1 Jarvis, NW SW NW SW section 7-1n-1e, 1,395-1,405 feet, shot with 10 quarts, 105 bbls. of oil and 10 bbls. of water; W. F. Lacy No. 1 Frank and Pfeiffer, SE NW NW NW section 18-1n-1e, 1,361-91 feet, 160 bbls. These are east extensions to the Centralia field, bringing the development closer to the center of the city.

Richland County: Pure Oil Co. No. 4 Snyder, C E half SW NW section 3-3n-9e, 2,967-70 feet, 38 bbls. on pump; Pure Oil Co. No. 14 Coen, C W half NE SW section 4-3n-9e, McClosky pay at 2,940-55 feet and saturated dolomite at 2,955-90 feet, 65 bbls. on the pump; Pure Oil Co. No. 1 Pflaum, C N half NE NE section 5-3n-9e, pay at intervals at 2,952-82 feet and saturated dolomite at 2,997-3,006 feet, 1,703 bbls. flowing; Pure Oil Co. No. 1 Colborn, SE corner SW SW SW section 33-4n-9e, 2,948-67½ feet, 1,913 bbls., flowing; Pure Oil Co. No. 1 Wade, C S half SE SW section 33-4n-9e, 2,962-82 feet, 1,354 bbls., flowing; Kingwood Oil Co. and others No. 1 Elliott, C N half SE NE section 28-4n-10e, dry and abandoned at 3,148 feet (McClosky sand at 3,040-41½ feet) location for No. 2 Elliott was abandoned.

Wayne County: Pure Oil Co. No. 2 C. B. Clay, C W half NE NW section 27-1n-7e, a core-drilled hole, pays at 3,090 to 3,138 feet at intervals, total depth 3,167 feet flowed 1,166 bbls. of oil and 299 bbls. of water through 4½-inch casing set at 3,083 feet.

Another core drilled hole, Continental Oil Co. No. 1 Jantzen, 1,020 feet from north and 1,024 from west lines of NW quarter section 28-2n-2w, Clinton County, found Benoist sand at 1,307-44 and it was dry. The hole was abandoned.

New Operations

New operations numbered 30, including locations, rigs and drilling wells.

The Centralia field, Kesl & Fox No. 4 Storer, NW NE NE section 13-1n-1w, was drilling at 700 feet; George Kuhn No. 1 Bailey and others, near SE corner NE SE section 13-1n-1w, rigging up machine; Thompson & Self No. 2 Hanseman, 321 feet from north and 880 feet from west lines of NE quarter section 12-1n-1w, drilling at 1,135 feet; Shell Petroleum Corp. No. 1 Lippert, 965 feet from east and 300 feet from south lines of NW quarter section 1-1n-1w, moving in rotary; E. A. Johnson No. 1 Gutzler, 1,375 feet from south and 100 feet from east lines of SE quarter section 13-1n-1w, moving in rotary; Burgess & Evans, No. 1 Hailey, 1,225 feet from south and 100 feet from east lines of section 13-1n-1w, rigging up cable tools; S. M. McGee No. 1 Chambers, near NE corner SE NE NE section 13-1n-1w, moving in machine; D. D. Huddleston No. 1 McKee, SW corner NE SW NW section 18-1n-1e, rigging up rotary; G. C. Roland, No. 1 Reynolds, near CWL NW NW NW section 18-1n-1e, rigging up rotary; Crier & Grode No. 1 Lady, near CEL SE NE SE section 12-1n-1w, rigging up rotary; Penn Illinois Oil Co. No. 1 Deley, SE corner SW NW SW section 12-1n-1w, rigging up rotary; Bonnie Oil & Gas Co. No. 1 Williams, SW corner SE NE SE section 12-1n-1w, spudded; Bell Oil & Gas Co. No. 1 Gambill and others, near NE SW SE NE section 13-1n-1w, rigging up rotary; George Anderson, No. 1 Marshoff, CWL NW NW section 18-1n-1e, rigging up rotary; T. T. Eason & Co. No. 1 SE corner SW SW SW NW section 18-1n-1e, rigging up rotary; Ryan & Hinds No. 1 Pittenger, SW corner NW NE SE section 12-1n-1w, drilling at 200 feet; John Pugh Drilling Co. No. 1 Gatzler, SE cor. NE SE section 13-1n-1w, moving in rotary; Crosby & Gill No. 1 Pfeiffer, 535 feet from north and 450 feet from east lines of SE quarter section 12-1n-1w, set 7-inch casing at 1,376 feet, after penetrating Benoist sand at 1,380-84 feet.

In Fayette County John Farrelly is deepening No. 1 Lilly, SE corner SW SE section 16-8n-3e, a 30-bbl. well in Cypress sand at a total depth of 1,524 feet; new total depth 1,350 feet and drilling ahead.

In Clinton County, Wilson & Bird were rigging up standard tools in C W half NW SE section 35-2n-2w.

In Clark County Stipes and others made a location for No. 1 Wilhoit, SW NE NW section 30-12-13w.

In Piatt County Max Pray and others were drilling at 3,200 feet in a St. Peter sand test, No. 1 Baker, SW NE NE section 12-16-6e.

In Richland County, Pure Oil Co. set 9⅝-inch casing at 214 feet in No. 2 Colburn, 1,007 feet from south and 653 feet from west lines of section 33-4n-9e, made a location for No. 6 Montgomery-B, C N half NE NW section 4-3n-9e, and had dug cellar for No. 3 Correll, 610 feet from west and 330 feet from south lines of SE quarter section 33-4n-9e. Ohio Oil Co. made locations for No. 2 Schilling, C S half SW SE section 32-4n-9e and No. 3 Schilling, C N half SE SE section 32-4n-9e.

In Clay County Pure Oil Co. made location for No. 3 Staley, C E half NW SW section 9-2n-8e.

Among the Wildcats

In Bond County, Whitehead & Morey No. 1 Polland, NW SE SW section 26-6n-2w, was drilling in sand at 3,285 feet.

In Champaign County, Nedra Oil & Gas Corp. (formerly reported as Casey & Edwards) No. 1 Mohr, SW SW SW section 9-17-10e, was drilling at 505 feet. It had an oil showing at 465 feet and a small showing of gas at 485 feet.

In Clay County, Kingwood Oil Co. and others No. 1 Bressenden, C S half SW NW section 8-3n-7e, had rotary tools in.

In Edgar County, Sun Oil Co. No. 1 Goodwin, C W half NE SE section 22-13n-12w (measuring from Indiana principal meridian), was at a total depth of 1,230 feet, underreaming 8⅝-inch casing.

In Effingham County, Kingwood Oil Co. No. 1 McWhorter, C E half SE NW section 15-6n-6e, lost circulation at 3,605 feet and the crew was testing. Graham & Duncan No. 1 Rickers, C N half SE NW section 18-6n-7e, was drilling at 2,075 feet.

In Jasper County, Obermyer No. 1 Atkins, NW NW NE section 3-6n-9e, was drilling at 2,107 feet.

In Jefferson County, Nollem & Benoist No. 1 Kelly, NE NW NE section 25-4s-2e, was at a total depth of 2,800 feet with 5⅞-inch pipe set at 2,763 feet. It is showing for 15 bbls. a day but will be acidized.

In Macon County, Warner Brothers No. 1 Patterson, NW NW SW section 3-15n-2e, was drilling at 910 feet.

In Menard County, Johnson Brothers No. 1 fee, C SW SW section 24-19-5w, was drilling in a water sand at 1,550 feet. It had a showing of oil and gas at 1,360-70 feet.

In Perry County, Amerada Petroleum Corp. No. 1 Pyramid Coal Co., NW NE NW section 10-6s-3w, a deep test, had Cypress sand at 1,239 feet with a showing of oil. A 40-minute drill stem test at 1,237-67 feet recovered 600 feet of salt water and 100 feet of mud, with a small oil showing. The well was drilling at 1,267 feet.

In Saline County, C. F. Bolton and others No. 1 Beagle, NW cor. NE section 13-9s-7e, was drilling at 2,035 feet. It penetrated an oil sand at 1,853-66 feet, but the showing did not indicate a paying production.

In Wayne County, Benedum-Trees, Inc., No. 1 Gloyd, C E half E half SE section 32-2n-7e, had a showing of oil at 3,170-82 feet and was coring ahead.

In White County, Mazda Oil Corp. No. 1 Meads, NE NE NE section 25-5s-9e, set 10-inch casing at 71 feet, and was waiting for it to test.

CENTRAL OHIO

LIMA, Ohio, Apr. 18.—Three oil wells, six gas wells and a dry hole were completed in the Central Ohio fields in the past week.

In Knox County, Jackson Township, Preston Oil Co. No. 1 Martin McCammet, section 10, made 23 bbls. of

(Continued on Page 92)

California Field Report

By
L. P. STOCKMAN

World's Deepest Pay Sand May Underlie Big Acreage

LOS ANGELES, Calif., Apr. 18.—Continental Oil Co. opened a new oil and gas field in the Wasco district of Kern County in San Joaquin Basin and at the same time came into possession of the deepest commercial producing well in the world when No. 2-A Kern County Land in section 8-27-24 was brought in flowing 3,000 bbls. of clean 37.1-gravity oil and 660,000 feet of gas per day from 13,175 feet, with bottom of the hole at 15,004 feet.

This well, which is showing an unusually small gas-oil ratio, was completed flowing through a ¼-inch bean and during the next 24 hours tanked 591 bbls. of 37.1-gravity oil and made 250,000 feet of gas. Under this restriction tubing pressure built up to 1,350 pounds and casing pressure to 400 pounds but when the bean was opened up to ⅝-inch for a short test pressure dropped to 300 pounds on the tubing and 50 pounds on the casing. No. 2-A Kern County Land has been kept beaned down to around 500 bbls. daily since completion due to inadequate storage facilities but will probably be opened up for a potential test as soon as the necessary tankage has been erected.

This well is 6 miles east of the Semi-Tropic gas field and approximately 12 miles northwest of the Rio Bravo field where Union Oil Co. completed a large well flowing 2,500 bbls. per day from 11,302 feet in November of last year. The Continental well, located west of the town of Wasco, was finished with 2,898 feet of Securaloy liner carrying perforations at 13,092-13,175 feet and at 14,049-14,315 feet and cemented through perforations at 13,996 feet and 13,005 feet. The producing interval believed to be at 13,175 feet was not cored but was electrically logged upon conclusion of drilling operations at 15,004 feet. The productive interval is believed to correlate with Rio Bravo sand originally discovered by Union Oil Co. in the Rio Bravo field, where it has been found exceptionally productive. The liner landed in the Continental well was 12.6-pound, 4½-inch combination aluminum and the hole includes 9,696 feet of 2½-inch tubing.

Important Discovery

Discovery of commercial production in the Wasco district indicates that the deep Rio Bravo sand may prove to be an important source of future production in the San Joaquin Basin. There is no geological reason why this zone should not underlie most of the present productive fields in San Joaquin Valley, especially those in the center of the valley floor, although some areas may require exceptionally deep drilling. The finding of a productive area at Wasco indicates the possibility that this folding lines up with a new uplift. It may later result in the discovery of additional fields east of an uplift along which productive intervals have been discovered at Greeley, Rio Bravo and Semi-Tropic. A parallel uplift of the Semi-Tropic line of folding has yielded productive areas at Ten Section, Canal and Buttonwillow.

Seaboard Oil Corp. may deepen its No. 1-C Kern County Land in section 26-27-24, a few miles southeast of the Wasco discovery. Seaboard's wildcat has been shut down at 10,243 feet with 6⅝-inch casing cemented at 9,154 feet, since July, 1937.

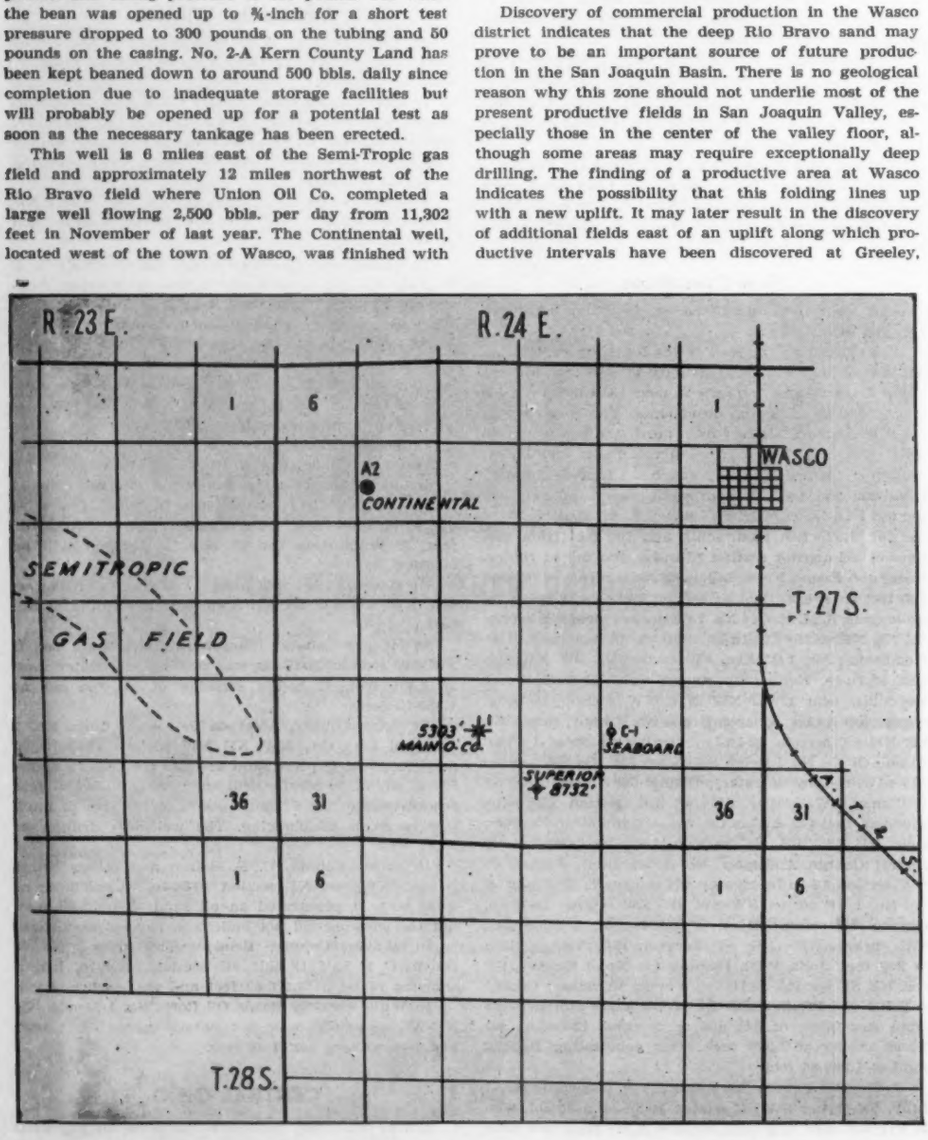
Wilmington

General Petroleum Corp., discoverer of the Wilmington field, finished three new wells in that field, but Union Pacific Railroad Co. headed the weekly production list by completing No. 72 flowing 8,860 bbls. of clean 28.1-gravity oil per day through three 1-inch beans from 3,984 feet. This well was finished with a combination 8⅝-inch and 6⅝-inch liner landed at 3,423 feet and 3,983 feet, respectively. The 8⅝-inch was perforated at 3,004-3,120 feet, 3,140-3,237 feet and 3,247-3,402 feet with 60-mesh and the 6⅝-inch was perforated with 60-mesh at 3,454-3,725 feet and at 3,755-3,983 feet. Termo Co. No. 2 Long Beach Harbor Department was brought in flowing 5,183 bbls. of clean 24.7-gravity oil daily from 3,903 feet through a 42/64-inch and a 24/64-inch bean. Bankline Oil Co. completed No. 6 Union Pacific, flowing 2,950 bbls. of clean 27.8-gravity oil daily from 3,901 feet. It was finished flowing through a 45/64-inch bean and a 17/64-inch bean from the upper and lower Terminal zone. The hole was finished with a string of 8⅝-inch carrying perforations at 2,554-2,670 feet, 2,765-2,895 feet and at 3,295-3,900 feet and was cemented through perforations at 3,294 feet and completed with 2½-inch tubing with packer.

Additional Completions

General Petroleum Corp.'s new producers were No. 33 Ford flowing 340 bbls. of 21.5-gravity oil daily from the Ranger zone, No. 10 Harbor Community flowing 1,265 bbls. of clean 26.1-gravity oil from the Terminal zone and No. 16 Harbor Community flowing 1,525 bbls. of clean 25.9-gravity oil from the Terminal zone. No. 10 Harbor was finished with a combination 6⅝-inch and 8⅝-inch casing carrying perforations at 2,414-2,695 feet, 2,825-3,300 feet, 3,340-3,601 feet and at 3,641-3,890 feet. Top of the 6⅝-inch is at 2,776 feet and it has a packer at 2,775 feet and a cement job through perforations was accomplished at 2,819 feet. No. 15 Harbor Community was completed with a full combination string of 6⅝-inch and 8⅝-inch with 1,070 feet of the former on bottom at 3,880 feet. Perforations of 50-mesh are at 2,436-2,730 feet, 2,860-3,335 feet, 3,375-3,620 feet and at 3,660-3,880 feet. No. 33 Ford was finished with 471 feet of 6⅝-inch liner carrying 374 feet of perforations and 2,402 feet of 3-inch tubing. No. 33 Ford was bottomed at 2,925 feet. No. 10 Harbor at 3,900 feet and No. 15 Harbor at 3,889 feet. On the Nelson lease in the older section of the Wilmington field, Royalty Service Corp. has completed No. 6-A flowing 210 bbls. of clean 25.1-gravity oil daily from 5,660 feet. The well was brought in flowing through a 28/64-inch bean and shows a tubing pressure of 100 pounds and a casing pressure of 340 pounds.

James Michelin completed his first well in the Wilmington field and will probably start another within a short time. The new completion was No. 1 Wilmington which was finished flowing 431 bbls. of 14.8-gravity oil daily from the Ranger zone at 3,000 feet. Superior Oil Co. established a new drilling record for the Wilmington field by completing No. 17 Back Bay flowing 360 bbls. of 16.8-gravity oil per day from the Ranger zone at 3,056 feet in exactly 10 days from the time the well was spudded in. No. 2 Seaside of the same company also made exceptionally fast time and was completed flowing 434 bbls. of 17.1-



Continental Oil Co.'s discovery in the Wasco district of Kern County, about 4 miles east of the Semi-Tropic gas field. Continental's Wasco well is the deepest producer in the world, with bottom of the hole at 15,004 feet and production coming from 13,175 feet. A deeper zone at 14,040 feet has not been tested

gravity oil daily from the Ranger zone at 2,917 feet. Superior Oil Co. still has a number of undrilled locations in the Long Beach Harbor section of the field and will continue development work. Hogan Petroleum Co. completed No. 1 Graham, flowing 276 bbls. of 18.5-gravity oil daily from the Ranger zone at 3,080 feet. This well was carried down to 4,199 feet but, finding the Terminal zones barren, was plugged back to the completion depth. Selegna Oil Co. completed its No. 11 flowing 262 bbls. of 14.3-gravity oil daily from the Ranger zone at 3,200 feet.

Santa Maria

Palm Holding Co. completed No. 2 Bill pumping 740 bbls. of 16.7-gravity oil daily from 4,248 feet. Top of the Franciscan basement was logged at 4,243 feet and the hole was finished with 319 feet of 6⅝-inch liner including 282 feet of perforated landed on bottom and 4,217 feet of 3-inch tubing. E. H. Moore, Inc., completed No. 1-H in section 19-10-34 pumping 150 bbls. of 15.9-gravity oil daily from 5,250 feet but the output may build up. The hole was finished with 420 feet of 6⅝-inch liner including 380 feet of perforated landed on bottom. Union Oil Co., discoverer of the Santa Maria Valley field, completed No. 2-1 O'Donnell in section 21-10-34, but it was good for only 110 bbls. of 16.4-gravity oil per day on the beam from 5,522 feet. It topped the Franciscan at 5,514 feet and was finished with 451 feet of 6⅝-inch liner including 289 feet of perforated landed at 5,520 feet.

Montebello

The Montebello field which a few months ago was inactive has taken a new lease on life as a result of discovery of deeper production in the Miocene by St. Helens Petroleum Co. That company, holding all of the potentially productive acreage north of the road will be obliged to enlarge development in order to adequately offset drilling operations by other operators. Union Oil Co. is running two strings of tools but is rigging up another well which is scheduled for immediate work. The latter is favorably located with respect to structure and is an offset to No. 24 Monterey of St. Helens which is showing favorably as far as structure is concerned. This well, which is testing a new intermediate zone in basal Pliocene, has tested wet for the second time at 5,781 feet and the 9⅝-inch water string at 5,408 feet will be recemented. St. Helens is testing this zone because the well on a preliminary production test last week flowed for two days at the rate of 1,500 bbls. of 34.1-gravity oil along with 500 bbls. of water. This zone was cased off in the deep zone discovery well as the Miocene sand looked much better.

Union Oil Co. made two formation tests on No. 1 Paul Howard and both proved unsatisfactory as they indicated that the upper zone produced water. The company resumed drilling but may test out the lower portion of this zone before casing it off. Standard Oil Co., after reinforcing the wooden derrick over No. 1 Harvey to deepen to the Miocene, has decided to return the well to production in the upper zone and start a new hole from the grass roots. A new steel rig will therefore be erected within another few days and drilling operations started. Standard Oil Co. owns the Kaufman property in fee having purchased it in order to erect storage tanks and will probably develop this acreage if production is developed on the adjacent Harvey property. Union No. 1 Howard & Smith, which is being rigged up, has been selected as the location for two wells. Due to extensive nursery stock on the surface the company will whipstock one well to the west and then move the rig a few feet south and drill a straight hole. The cement rig base has been constructed in order to permit the shifting of the rig with a minimum of effort and the derrick has been especially reinforced.

Kern County

Ohio Oil Co. completed its third good well in the Canal field which the company discovered last year when No. 5-E Kern County Land in section 14-30-25

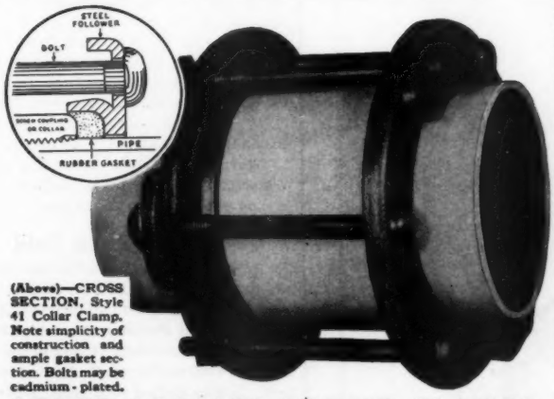
TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	April 8		April 1			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	70,180	.....
Diesel and gas oil	.....	.....	.....	.....	.....	176,726
Gasoline	331,171	47,310	77,928	11,118	870,595	519,573
Kerosene	.....	.....	.....	.....	132,575	.....
Foreign exports—						
Crude oil	143,550	20,507	870,537	124,362	6,231,486	3,572,861
Fuel oil	97,528	13,933	78,753	11,250	2,079,241	3,652,473
Diesel and gas oil	12,280	1,754	57,460	8,209	1,217,712	1,831,379
Gasoline	152,229	21,747	282,232	40,319	1,614,620	1,995,990
Kerosene	.....	.....	71,090	10,156	311,062	708,402
Other unfinished oil	.....	.....	.....	.....	.....	179,265
Coastwise-domestic—						
Crude oil	491,397	70,200	406,269	58,038	3,543,182	1,719,828
Fuel oil	352,155	50,308	44,453	6,350	3,249,671	4,155,701
Diesel and gas oil	23,520	3,360	4,458	637	416,157	642,572
Gasoline	522,905	74,701	270,249	38,607	4,117,315	3,270,886
Kerosene	18,092	2,585	.....	.....	83,196	51,840

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	178,662	152,932
Gasoline	.....	.....	.....	.....	9,499	25,778
Lubricants	.....	.....	.....	.....	76,458	.....
Foreign exports—						
Crude oil	.....	.....	.....	.....	1,065,484	829,591
Fuel oil	18,920	2,703	135,556	19,365	519,677	419,082
Diesel and gas oil	.....	.....	104,888	14,984	430,248	872,103
Gasoline	.....	.....	240,042	34,292	1,231,585	1,466,427
Kerosene	.....	.....	22,877	3,268	133,327	252,035
Lubricants	.....	.....	43,851	6,264	145,340	234,631
Coastwise-domestic—						
Fuel oil	181,929	25,990	81,746	11,678	1,788,558	1,777,580
Diesel and gas oil	49,623	7,089	18,311	2,616	472,011	158,656
Gasoline	120,412	17,202	76,542	10,935	1,717,344	1,209,923
Kerosene	30,316	4,331	13,413	1,916	235,760	41,340

FIX COLLAR LEAKS QUICK!



(Above)—CROSS SECTION, Style 41 Collar Clamp. Note simplicity of construction and ample gasket section. Bolts may be cadmium-plated.

Repairs to leaking collars are easy with Dresser Style 41 Collar Clamps! Easily applied by unskilled labor without interruption of the service, this repair clamp is inexpensive, can be furnished for any collar—old or new,—and is permanently tight for all pressures.

DESCRIPTION. Each Style 41 Clamp consists of a few, simple, factory-made parts (steel followers, gaskets, bolts), which are quickly assembled with only one tool—a wrench.

SIZES. Style 41 Collar Clamps are available in sizes 4½" to 12" I.D., inclusive. For sizes ¾" to 4" I.D., Style 4 (with malleable followers) is furnished.

HOW TO ORDER. Give: (1) quantity; (2) nominal size and outside diameter of pipe; (3) style number; (4) service—gas, water, etc.; (5) maximum working pressure; and (6) overall diameter and length of collar, where size or design of collar is special.

OTHER DRESSER REPAIR CLAMPS

Style 4 Collar Clamp is like Style 41, except made for sizes ½" to 4" I.D. only.

Style 55 Porous-Weld Clamp repairs porous circumferential pipe welds.

Style 74 Screwed-Fitting Clamp is for repair of leaks through threads of screwed fittings.

Style 77 Band Clamp stops leaks through small holes or pits in pipe.

Style 78 Saddle Clamp repairs leaks in pipe 4" I.D. or smaller. Two or more can be bolted together.

Style 79, Type 1, Split Repair Clamp fixes splits and pinned sections of pipe. Furnished also with one half-shell and stirrups (Type 2).

S. R. DRESSER MFG. CO.

BRADFORD, PA.

In Canada: Dresser Mfg. Company, Ltd., 60 Front St., West, Toronto, Ont.

was completed flowing 2,270 bbls. of 36.9-gravity oil and 1,290,000 feet of gas a few days ago. This new well which is flowing through 1-inch bean under a tubing pressure of 400 pounds and a casing pressure of 950 pounds was bottomed at 8,136 feet and finished with 178 feet of 4¾-inch aluminum liner including 84 feet of 100-mesh landed at 8,171 feet. No. 6-E Kern County Land in the same section is being rigged up and will probably be spudded in within another few days. Shell Oil Co. No. 81-31-B Kern County Land in section 31-30-26 proved good for 2,520 bbls. of clean 36.1-gravity oil and 2,350,000 feet of gas per day from 8,220 feet. The hole was finished with 263 feet of 4¾-inch liner which carried perforations at 7,980-8,035 feet, 8,055-8,175 feet and 8,195-8,218 feet.

Fruitvale

Western Gulf Oil Co. completed another commercial producer in the Fruitvale field of Kern County when No. 34-B Kern County Land in section 14-29-27 was brought in flowing 409 bbls. of relatively clean 17.5-gravity oil per day from 3,033 feet. In the Round Mountain field, California Western Oil Co. completed No. 11 in section 12-28-28 pumping 140 bbls. of 14.5-gravity oil, cutting 6 per cent daily, from 1,800 feet.

Shell Oil Co. No. 1-76-B Kern County Land in the Greeley field, is being abandoned at 7,534 feet as the productive horizon proved to be barren. In the Mount Poso field, Ring Oil Co. has concluded drilling operations on No. 4 Bohen at 1,663 feet and pumping equipment is being installed. The hole has been finished with 87 feet of 7-inch liner including 64 feet of 140-mesh perforations landed at 1,661 feet. This is one of the largest diameter liners landed in this field.

Ventura Avenue

Tide Water Associated Oil Co. keeping pace with the consistent trend toward deeper drilling completed No. 18 Hartman in the Ventura Avenue field in the deep zone. This well, which was recently given a preliminary production test from 10,090 feet, has been completed flowing 2,152 bbls. of clean 28.5-gravity oil and 1,760,000 feet of gas per day from 10,870 feet. It was finished flowing through a 96/64-inch bean after 1,509 feet of 4½-inch liner including 1,429 feet of perforated and 7,495 feet of 3-inch tubing had been run. During the latter part of February No. 18 Hartman on a test from 10,090 feet produced 980 bbls. of oil per day on gas-lift but the company was not satisfied with production and resumed drilling. No. 69 Lloyd in contrast with the substantial production developed in No. 18 Hartman was good for only 162 bbls. of 25.7-gravity oil, cutting 18 per cent from 7,170 feet. It is flowing through a 1-inch bean and shows 75 pounds on the tubing and 470 pounds on the casing.

Los Angeles Basin

In the Torrance field of Los Angeles Basin, Doyle Petroleum Co. No. 1 Bond which was brought in pumping 111 bbls. of 24.6-gravity oil per day from 5,098 feet. Two recompletions were No. 3 Wilson Community of the Texas Co. completed pumping 163 bbls. of 26.1-gravity oil daily after the hole had been deepened to 4,966 feet and C. B. Patton No. 2 Neill finished pumping 152 bbls. of 26.5-gravity oil, cutting 18 per cent, from 5,016 feet.

The water problem has become a rather disturbing factor in deep zone development in the Torrance field although this is being overcome to some extent by landing a full blank string of casing and then perforating at preselected points.

In the Long Beach field, Shell Oil Co. recompleted No. 1 Goddard pumping 203 bbls. of 27.8-gravity oil, cutting 18 per cent, after the hole had been redrilled from 2,620 feet to 3,520 feet. C. F. Yunker No. 2 Barbara has been completed pumping 114 bbls. of clean 24.6-gravity oil per day from 3,665 feet.

Central West Fields

(Continued from Page 89)

oil the first 24 hours after shot from the Clinton sand at 3,094-3,102 feet.

In Licking County, Mary Ann Township, Hoover Brothers No. 1 L. B. Lahman, Lot 18, first quarter, made 50,000 feet of gas in the Berea at 653 feet. In Mary Ann Township, Armbuster and others No. 1 C. T. Bricker, Lot 1, first quarter, had 100,000 feet of gas in the Berea at 637 feet.

In Meigs County, Salisbury Township, Fugate and others No. 1 John Diehl, section 34, is good for 300,000 feet of gas from the Maxon at 977 feet.

In Noble County, Beaver Township, Bindas & Seebach No. 1 L. D. Miller, section 11, started at 25,000 feet of gas per day in the Berea sand at 1,585-94 feet.

In Stark County, Plain Township, Chamberlin & Gardner No. 1 William Yeager, section 21, found the Berea dry at 740-50 feet. Total depth 778 feet.

In Washington County, Grandview Township, Knob Oil & Gas Co. No. 1 J. W. Pryor, section 21, made 10 bbls. of oil the first day from the first Cow Run sand at 780-95 feet In Grandview Township, C. D. Uhl No. 6 J. A. Huffman, section 22, made 24 bbls. of oil the first 24 hours after shot from the first Cow Run sand at 763-82 feet. In Salem Township, Harry Huffman No. 1 E. W. Huffman, section 13, is good for 50,000 feet of gas and 1 bbl. of oil from the Berea sand at 1,672-76 feet. In Warren Township, Henderson Oil Co. No. 2 James Watson, section 32, made 300,000 feet of gas from the Maxon sand at 1,495-1,510 feet.

Lima Field

In Seneca County, Clinton Township, A. J. West and the Sun Oil Co. No. 2 A. M. Clouse, section 7, was shot in the Green sand with 40 quarts and filled up 1,800 feet with fluid. In Pleasant Township, Herman Boss No. 1 Chester Shaull, section 16, found the top of the Trenton at 1,508 feet and a small show of oil and gas at 1,576 feet. It was drilled to a total depth of 1,618 feet and may be shot there.

WESTERN KENTUCKY

OWENSBORO, Ky., Apr. 18.—Seven completions, three oil wells, one gas well and three dry holes made up the week's results in the Western Kentucky fields. Three deep tests were started in Butler, Henderson, and Muhlenberg counties.

Completions and new work started include the following operations:

Breckinridge County, Glen Dean district, V. C. Hastings No. 1 John Owens, drilling at 120 feet; Vanzant district, Bryan & Patton No. 1 Stiley Howard, old well drilled deeper to top of Mississippi lime, total depth 528 feet, dry and abandoned.

219,000 LBS. OF TWISTING STEEL IS A BIG CONTROL PROBLEM

but QUINTUPLEX handles it perfectly

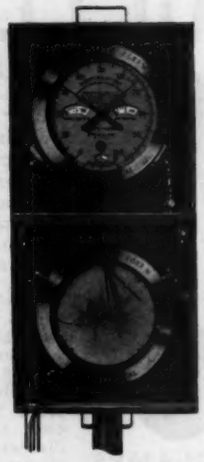
When Continental's record well drilled through 13,700 feet they were still using 3½"—16-pound drill pipe. That's more than Two Hundred and Nineteen THOUSAND pounds of twisting steel to hold on the nose!

At that tremendous depth steel pipe is as flexible as wire, and weight on bottom becomes an extremely critical factor. Imagine, then, the precise control necessary to hold that string on a vertical course, and yet maintain proper drilling progress.

Continental picked the Quintuplex for this ticklish job, and are able to control the weight on bottom so carefully two and a half miles away that they not only have held the hole beneath the derrick floor, but have set a new speed record while doing it!

That IS control.

Whether drilling deep or shallow wells you want that kind of drilling control . . . and that's exactly the kind you get in every Quintuplex!



Do You Know? 13,700 feet of 3½" drill pipe bears the same diameter-length ratio as more than an ⅛ of a mile of ordinary insulated light wire.

MARTIN-DECKER CORPORATION
LONG BEACH CALIFORNIA
San Joaquin Valley: A. F. McQUISTON, Bakersfield, California
Mid-Continent Distributor: REED ROLLER BIT COMPANY, Houston, Texas

Butler County, Tilford district, J. C. Miller, trustee, and others No. 1 Minnie Embry, deep test, drilling at 965 feet, 200 feet in Mississippi lime.

Daviess County, Pleasant Ridge district, Doctor Emerson No. 1 Mac Higgs, rigging up. Utica district, Daugherty & Ellis No. 2 J. A. Leet, formerly reported as William Huebner, 40 bbls. from Jett sand at 1,047-64 feet, shot with 40 quarts at 1,053-64 feet.

Grayson County, Yeaman district, A. V. Smith and others No. 1 Guy Patterson, dry hole through Bethel sand, total depth 281 feet. Falls of Rough district, A. V. Smith and others No. 1 Crit Porter, moving in.

Hancock County, Pellville district, O. D. Vickers and White No. 1 M. Remington, abandoned location. Easton district, J. C. Ellis Nos. 16 and 17 R. A. Richards, spudding in.

Henderson County, Hamilton Ferry district, Hoosier Drilling Co. No. 1 C. T. Blackwell, deep test, drilling in top of Mississippi lime at 1,785 feet. Anthoston district, Mecca Oil Co. and others No. 1 Grasty heirs, moving in.

McLean County, Semiway district, Cumberland Petroleum Co. and others No. 1 Ed Conrad, rigging up. South Livermore district, Roy Mace and others No. 2 J. E. Howell, drilling at 400 feet. North Livermore district, J. C. Miller, trustee, No. 10 Mrs. Fannie Foley, 10 bbls. from Bethel sand at 1,085-1,102 feet; W. K. Snyder and others No. 1 Lloyd & Jackson, 340,000 feet of gas from Bethel sand at 1,328-37 feet, total depth 1,339 feet.

Muhlenberg County, Bremen district, Peerless Oil Co. No. 1 C. C. Gossett, deep test, underreaming at 1,760 feet.

Ohio County, Heflin district, W. W. Damron and others No. 1 G. C. Rowan, lost the hole in Barlow sand, and the well was abandoned.

Webster County, Sebree district, Joel Bailey and others No. 3 G. T. Rideout, 3 bbls. from sand at 336-61½ feet, total depth 363 feet, shot with 60 quarts; I. B. Browning and others No. 6 J. R. Ramsey, deep test, setting 8¼-inch pipe at 785 feet; Powell, Koker and others No. 3 L. Allen, dry and abandoned, total depth 990 feet.

EASTERN KENTUCKY

ASHLAND, Ky., April 18.—Nine oil wells, five gas wells and a dry hole were reported from the Eastern Kentucky fields in the past week. Drilling operations are increasing with better weather conditions prevailing.

In Lee County, C. B. Ullium and others report the completion of No. 4 on Sarah Snowden land on Billie's Fork, Big Sinking district, Lee County, at a depth of 832 feet. The well is producing 2 bbls. of oil a day. The Fleiger Oil Co. is down 1,100 feet in No. 1 Andrew Combs on Billie's Fork, with drilling continuing with a pool showing. Water was cased off last week.

Despite a lot of water, No. 1 M. V. Bailey land on Billie's Fork was completed at 1,078 feet by W. G. Wiggins. It made 5 bbls. of oil a day. Thomas Witner reports the completion of No. 10 C. J .Tipton on Billie's Fork at a total depth of 718 feet. It started at 4 bbls. per day.

In Martin County, Virginian Gas & Oil Co. completed No. 1 Park Tract, Big Crooked Creek, Martin County, with an initial production of 20 bbls. of oil. J. T. Diederich has a well good for 50 bbls. of oil per day in No. 4 Amy Puly farm nearby but it will be drilled deeper.

The Kentucky-West Virginia Gas Co. made a location for No. 573, Jennie and James Caldwell land, on Peg Fork of Coldwater Fork. The same firm shot No. 5237 C. W. Preece land, on Coldwater Fork, but had not completed it, and is down 1,222 feet in Black lime in No. 5239 on the same land and is grading road to No. 5240 on the Preece farm. The Kentucky-West Virginia Gas Co. is down 1,300 feet, in Black lime, in No. 5238 on M. M. Pratt land in the same locality.

Warfield Gas Co. is moving in at No. 4772, Jeff Newberry land, on Blacklog Creek, and was drilling at 940 feet in No. 4733, Jeff Newberry farm, on Lick Branch. Warfield Gas Co. is on location for No. 477, Clementine Goble land on Spench Branch.

Hale and others No. 1 Hardin Heirs on Ashlog, was completed at a total depth of 2,803 feet in shale. It started at 50 bbls. of oil per day.

In Floyd County, Kentucky-West Virginia Gas Co. is building road to No. 567, M. Slone and M. D. Slone land, on Levisa Fork and is down 1,812 feet in slate in No. 569, Jeff Jervis farm, on Home Branch of Buffalo Creek. The same firm was drilling at 975 feet, in sand, in No. 570, Clarence Neeley land, nearby and is building road to No. 573, Jennie Caldwell farm in same vicinity. Kentucky-West Virginia Gas Co. completed No. 5233, John F. Burchett land on Cow Creek at a total depth of 2,780 feet, in White slate, with a daily production of 95,000 feet of gas.

Hamilton Gas Co. is ready to start No. 77-D James Hatcher and No. 78-D on same land, on Dropping Lick. Fred Williams completed No. 1 Mrs. Woods at Betsy Layne, in Big lime, an initial production of 2,000,000 feet of gas. Same operator completed No. 5 Stanley Heirson, on Levisa Fork, at a total depth of 2,790 feet, in shale, with daily production of 100,000 feet of gas. The same operator completed No. 3 W. Honaker on Camp Branch.

Beve Sturgill and others completed No. 1 May Layne on Toms Creek at total depth of 1,515 feet, in Big lime, with an initial production of 20 bbls. B. C. Stephens and others completed No. 1, John Goble land on Cow Creek at a total depth of 2,482 feet, in shale, with a daily production of 219,000 feet of gas and a strong showing of oil.

In Knott County, Operator Spurlock completed No. 2 Charles Hicks on Jones Fork in Knott County, but details are not yet available. The Inland Gas Corp. is down 1,205 feet in salt sand in No. 198 Maryland Beverly, on Jones Fork of Right Beaver.

In Johnson County, Francis & Webb completed No. 3 James Wells on Daniels Creek with an initial flow of 143,000 feet of gas. E. J. Evans is down 600 feet in No. 4 Thealka Coal Co. land at Road Fork in Johnson County.

In Magoffin County, C. J. Sipple & Co. were drilling at 790 feet in No. 7 William Salyer, on Birch Branch in the Burning Fork district of Magoffin County. Operator Jenkins completed No. 1 John Adams, on Short Fork, at a total depth of 1,168 feet, in Weir sand. It made 6 bbls. daily before the shot.

In Powell County, South Penn Oil Co. completed No. 13 Adams & Lamberson with an initial of 3 bbls. of oil per day and the same firm was drilling at 150 feet in No. 14 on the same farm.

Wireman Brothers completed No. 4 on Albert Stewart land, on South Fork. Perkins & Schmidt and others are down 150 feet in No. 2 on Stewart heirs land on South Fork.

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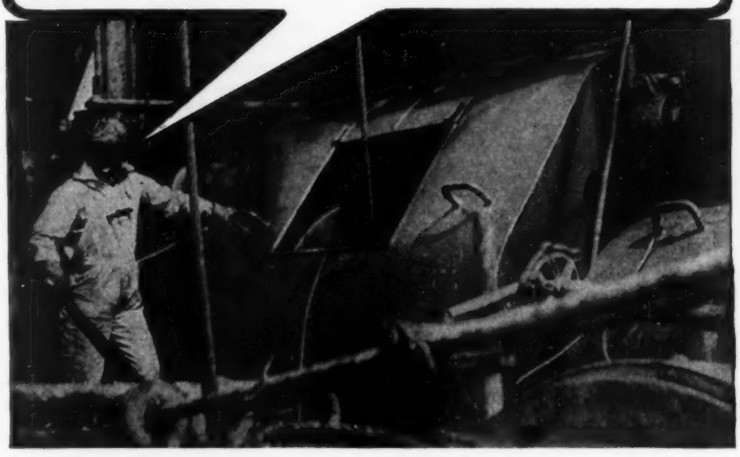

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Southwest Texas District

By
F. L. SINGLETON

Find Third Productive Sand in W. Saxet, Nueces County

CORPUS CHRISTI, TEXAS, Apr. 18.—The opening of a shallow Serpentine field along the Balcones Fault line district, and the discovery of a new sand in the active West Saxet field, Nueces County, were the highlights of development in the Southwest Texas district the past week.

Two miles southwest of Dunlay, Medina County, Ewing Oil Co. opened a Serpentine field with the completion of No. 1 E. G. Riff, Survey 42. On a 36-hour gauge the well pumped 80 barrels of 20 gravity oil through 1¼-inch tubing. Larger tubing is being run by the company in an attempt to increase the production. The hole is bottomed in the Serpentine at 716 feet, with 5⅞-inch casing cemented at 542 feet which is the top of the sand. This discovery is expected to be the forerunner of considerable wildcatting along the trend west of San Antonio.

Completion of J. R. Trentman and others No. 1 Carle Mercantile, V. A. Johnson Survey, has been delayed due to a split casing. The well is bottomed in the Buda lime at 1,905 feet, and after it had been acidized, the split in the casing was found. The crew will attempt to squeeze the split with cement and then reacidize the formation.

The first gauge received on H. J. Spiller No. 1 Wright which opened an Austin Chalk field in Guadalupe County, shows the well capable of making only 10 barrels of oil and 4 barrels of water per day on the pump.

Prospects of opening Edwards Lime production in the Carrizo Springs area, Dimmitt County, were given a set-back when Paul Texas and others prepared to plug back No. 1 Phillips to the Dobie Lime. Five-and-one-half-inch casing was cemented last week at 7,094 feet, and the hole was drilled to 7,142 feet, where stuck drill pipe resulted in the decision to plug back to the Dobie section, where oil showings were reported to have been logged.

West Saxet's New Sand

In the Corpus Christi District, a third productive sand was apparently opened at West Saxet, Nueces County, as Rand Morgan No. 2-C Fee cleans into the pits flowing 5 barrels of fluid per hour through a 11/64-inch choke, with tubing pressure 475 pounds and casing pressure 800 pounds. The oil content was reported as being 45 per cent and the balance wash water with no showing of salt water. This gives the field a shallower sand, as production was obtained by perforating casing at 3,846-50 feet. The pressure on the tubing was 475 pounds and the casing pressure 800 pounds.

The deep sand of the Saxet Heights field was extended to the southwest with the showing of Sultex Oil Co. No. 1-B Taggert, Block 5, Survey 401 feet. The hole was deepened to 6,841 feet, and on a drill stem test at 6,831 feet, showed 990 feet of oil and 130 feet of working pressure in 10 minutes. Casing was cemented at 6,831 feet.

East of the Plymouth field, San Patricio County, Humble Oil & Refining Co. was recompleting No. 1 Smith and Tolbert, after making a cement squeeze job to eliminate tremendous gas pressure at 4,814-15 feet. The hole is bottomed in the Heterostegina formation at 4,836 feet.

Plymouth Oil Co. No. 1 Nelson, an offset to the discovery well of the East Point field, San Patricio County, has been completed for an initial production of 7 barrels per hour through a ⅛-inch choke with tubing pressure 800 pounds and casing pressure 1,100 pounds. The hole is bottomed in the discovery horizon at 6,586 feet. Same company's No. 1 Owens, cored sand at 5,675-79 feet, and on a 15-minute drill stem test, showed 60 pounds of working pressure and recovered 400 feet of oil.

In the Maetze area, Goliad County, Windward Oil Co. No. 1 Drier has been completed. It is a small distillate well in a new sand. On a potential test flowing through bottom-hole chokes, it produced 2 barrels of distillate. Perforations were made from 4,806-09 feet. Several major and independent companies are interested in this area and additional development is expected in the near future.

Interest in Jim Wells County is centered on Howell and others No. 1 Lindsay and Reed, 4 miles south of Alice in the Lavaca Grant. The hole is bottomed at 5,475 feet and casing was cemented on bottom after a Schlumberger survey. A drill-stem test was attempted at 5,320-5,425 feet but the seat failed to hold and 2,760 feet of fluid was recovered, of which 460 feet was gas-cut mud, 1,840 feet of drilling mud, slightly cut with oil, and 460 feet of mud and water. East of Ben Bolt, King Survey 62, Richardson (Earl Galloway) No. 1 Garcia was swabbing wash water with no show of oil after perforating in a sand section which showed favorably from 4,850 to 5,848 feet.

Harry L. Edwards No. 2 Robertson, east of the discovery well of the East Telferner field, Victoria County, has been completed for an initial production of 3 barrels per hour through a 9/64-inch choke, with tubing pressure 1,800 pounds and casing pressure 2,100 pounds. The well is producing from sand at 5,082-5,109 feet.

Interest in the Rio Grande Valley district is centered on the deep test of Magnolia Petroleum Co., No. 1 F. Armendiaz, 9 miles northeast of the Mercedes field. A 10-minute drill-stem test through perforated casing at 9,610-20 feet, showed 75 pounds of pressure. The perforations have been squeezed off and the hole is being carried deeper.

COMPLETED WELLS

Completed wells in proven Southwest Texas fields, with their total depth and initial 24-hour production of the producing wells were as follows:

Aransas County

McCampbell Field: Atlantic Refining Co. No. 1 Cameron, 7,221 feet, perforated casing 7,192½-96½ feet, 156 bbls., ⅞-inch choke. Atlantic Refining Co. No. 13-B Porterfield, 7,220 feet, plugged back 7,138 feet, 140 bbls., ⅞-inch choke.

Bee County

Normanna Field: J. R. Dougherty No. 1 Mangus Beck, 3,721 feet, abandoned.

Caldwell County

Branyon Field: Martel Petroleum Co. No. 1 Teas, 2,353 feet, 38 bbls., pumping. Universal Oil & Gas Co. and others No. 2 Calliham, 2,424 feet, abandoned. Dunlap Field: Johnson Petke No. 1 Nugent, 2,397 feet, 6 bbls. oil, 4 bbls. water. Luling Field: Finley Oil Co. No. 2 Lampkin, 2,137 feet, 81 bbls. oil, 57 bbls. water, pumping. Trio Oil Co. No. 4 Byrd, 2,096 feet, 28 bbls. oil, 400 bbls. water, pumping. Salt Flat Field: Spokane Oil & Gas Co. No. 3 Davis, 2,545 feet, 300 bbls. pumping.

Bexar County

Von Ormy Field: Baker Oil Co. No. 1-A Fee, 800 feet, 3 bbls., pumping.

Duval County

Benavides Field: Arkansas Fuel Oil Co. No. 2 Wolfe 5,361 feet, 430 bbls. ¼-inch choke. Argo Oil Co. No. 1 Nolte, 5,350 feet, 210 bbls, ¼-inch choke. Bridwell Oil Co. No. 12 Ancira, 4,790 feet, 115 bbls, ⅛-inch choke. Circle Oil Co. No. 2-A West, 5,360 feet, 85 bbls., 5/32-inch choke. Glenn H. McCarthy No. 5-A Plocker, 4,368 feet, 143 bbls. 17 hours, ¼-inch choke. South-Wood Oil Co. No. 3 Walstad, 5,364 feet, 110 bbls., ¼-inch choke; No. 1-B Rossi, 5,497 feet, plugged back 3,915 feet, gas well. Cole Field: Cole Petroleum Co. No. 101 Benavides, 1,803 feet, abandoned. Government Wells Field: Conway & Storey No. 1 Breeden, 2,312 feet, abandoned. Hoffman Field: Cox & Hamon and others No. 5 Cuellar Points, 2,818 feet, 40 bbls., jetting. Cox & Hamon and others No. 6 Cuellar, 2,573 feet, 70 bbls., jetting. Cox & Hamon No. 9 Green, 2,746 feet, 60 bbls., jetting. Duval Oil Corp. No. 7 Ruiz, 2,870 feet, perforated casing 2,861-68 feet, 144 bbls. fluid, 75 per cent salt water, jetting. Labbe Field: Magnolia Petroleum Co. No. 15 Labbe, 3,814 feet, abandoned. Lundell Field: Government Wells Oil Co. No. 20 Lundell, 1,519 feet, 2 bbls. per hour, ¼-inch choke. Peters Field: Gier & Kone No. 4 Peters, 2,564, 30,000,000 feet of gas. Seven Sisters Field: Pan American Production Co. No. 10-A Welder, 1,698 feet, 82 bbls., ¼-inch choke. Reynosa Oil Co. No. 5 Welder, 2,645 feet, 11 bbls. per hour, ¼-inch choke.

Guadalupe County

Darst Creek Field: Chiquita Oil Co. No. 1 Tadlock, 2,627 feet, 130 bbls. fluid, 80 per cent sulfur water. United North and South Development Co. No. 8-A Dix, 2,488 feet, 60 bbls., 2 per cent salt water. Dunlap Field: D. G. Herring No. 2 W. A. Appling, 2,309 feet, 31 bbls. fluid, 50 per cent water.

Jim Wells County

Premont Field: Ray L. Martin No. 1 J. H. Palmer, 2,340 feet, 100 bbls. oil, 400 bbls. fresh water.

McMullen County

Ezzell Field: Harry Ezzell No. 12-A fee, sand 1,465-68 feet, perforated casing 1,461-70 feet, 113 bbls. pumping. South Callinham Field: Bell Howard No. 10 Claunch, 10,064 feet, 25 bbls. pumping.

Nueces County

Agua Dulce Field: Texon Royalty Co. No. 1 Horne, 6,323 feet, 54 bbls. ⅞-inch choke. Union Producing Co. No. 1 J. W. Torbett, 7,700 feet, perforated casing 5,295-5,309 feet, 50 bbls. ⅛-inch choke. Flour Bluff Field: Sinclair Prairie Oil Co. No. 1 State, 6,666 feet, perforated casing 6,653-60 feet, 92 bbls. 16 hours, ⅛-inch choke. Luby Field: Stanolind Oil & Gas Co. No. 5 McCann, 5,068 feet, 78 bbls., ⅛-inch choke. Saxet Field: Houston Oil Co. No. 10-A Harrell, 4,870 feet, perforated casing 4,739-43 feet, 100 bbls. ⅞-inch choke. Ben F. Smith No. 1-A Walton, 4,985 feet, 60 bbls., jetting.

San Patricio County

Plymouth Field: Plymouth Oil Co. No. 9-5C Welder, 6,159 feet, 121 bbls. oil, 35 bbls. salt water, ¼-inch choke. Taft Field: Humble Oil & Refining Co. No. 35 Mayo, 3,764 feet, 50,000,000 feet of gas, open flow.

Webb County

O'Hern Field: O. W. Killam No. 61 Bruni, 3,450 feet, perforated casing 3,269-77 feet, 72 bbls. ¼-inch choke. Magnolia Petroleum Co. No. 46 Benavides, sand 3,264-77 feet, gas well. Oilton Field: Daubert & Lipscomb No. 3 Garcia, 2,020 feet, perforated casing 1,973-79 feet, 109 bbls., jetting. Daubert & Lipscomb No. 6-A Garcia, 2,030 feet, perforated casing 1,999 to 2,005 feet, 89 bbls., jetting. Lewis Jones No. 2 Pena, 2,015 feet, perforated casing 1,981-91 feet, 3 bbls., ⅞-inch choke.

Zapata County

Comitas field: McKay & Upschurch No. 20 Haynes, 1,105 feet, 25 bbls., 2 per cent salt water, pumping.

Indications of New Pools in Northern Counties in Basin

By MITCHELL TUCKER

FORT WORTH, Tex., Apr. 18.—New locations in the West Texas Basin area showed a slight decline this week, as 32 proposed wells were announced, compared to 41 last week. Two new wildcats were staked compared to six for the previous seven-day period. At present there are 498 wells rigging up or drilling in this vast area, some of which have indicated possible new fields or important extensions in the past week.

North Permian Basin

A probable new oil field was indicated in north central Andrews County, about 3 miles west of the Means pool. H. C. Wheeler No. 1 F. E. Gardner topped the lime favorably as compared to other dry holes in the area, and received its first saturation at 4,525-35 feet, and a good increase at 4,540 feet. The well is making one bailer of free oil hourly while drilling ahead.

In southern Gaines County interest is also directed toward a possible field opener. Eastland Oil Co. No. 1 Dunbar, about 7 miles southeast of the Hobbs pool, has drilled soft saturated lime at 4,365-68 feet and 4,369-83 feet. The section from 4,388 feet to 4,403 feet was drilled at the rate of 1 foot in seven to eight minutes, which is usually indicative of good porosity. More possible pay was cored at 4,408-83 feet. The 7-inch casing is being run in preparation to test.

Also in south central Gaines County, the Kirk one-well area continued to look good, as two tests to the northwest of the discovery well continued favorable. One and one-half miles west of production, Landreth Production Co. No. 1 Paul W. Dalmont is running about flat on the Yates sand marker with the discovery, and logged good showings of gas in the lower Yates.

Yoakum County

Two miles south and west of the Denver area of southern Yoakum County, Helmerich & Payne, Inc., and Continental Oil Co. No. 1 Ohio-Sadie O'Dowd is drilling below 4,650 feet and reported to be running higher than any producer in the Denver pool. A possible trend of production in that direction is further confirmed by Shell Petroleum Corp. No. 1 Mrs. Dora Roberts, situated about 4 miles west of the Denver pool, which has checked all markers so much higher than in the field proper that the opinion is now advanced that a new pool rather than a Denver extension is probable. No. 1 Roberts cored well-saturated and bleeding lime from 4,850 to 4,893 feet, with very little porosity. Other slightly porous and oil-bearing cores were recovered to the present total depth of 4,914 feet, and coring is to be continued.

Hockley County

Gulf Oil Corp. No. 1 Gordan, a three-quarter mile southeastern extension to the Slaughter field of southwestern Hockley County, flowed 144 bbls. of oil in 16 hours on preliminary gauge. Gas flow is estimated at about 2,500,000 feet. Gulf's No. 1 Mallett Land & Cattle Co., 2 miles southwest of production, is testing for water shut off at 5,062 feet. Three miles further to the southwest, Larry E. Hults No. 1 P. J. Ross, is reported to be checking about level with the Slaughter field, as it drills below 4,000 feet in anhydrite. Honolulu Oil Corp. added the sixth producer in the Slaughter field last week, its No. 1-77 Slaughter, flowing 27 bbls. hourly on preliminary gauge.

Dickens County

Interest has been directed to the northernmost tier of counties in the district commonly referred to as the North Permian Basin, as J. F. Morrissey No. 1 R. D. Bird, a wildcat in Dickens County, reports saturation in the Blain lime (Permian) at 2,410 to 2,534 feet. Drilling continues in search of a more porous section, and should the lower zones prove nonproductive, operators plan to plug back and acidize in the Blain horizon. This well is about 12 miles north of Gulf Oil Corp.'s important 8,000-foot test in Garza County, at present drilling below 3,500 feet. J. F. Morrissey is drilling below 775 feet in No. 1 McMahon as a Permian test about 6 miles northeast of his No. 1 Bird.

Harper Pool

The possible 2-mile southern extension to the Harper pool of Ector County continued promising through the week. Sinclair Prairie Oil Co. and others No. 1 Paul Moss logged increases in saturation from 4,080-94 feet after reporting first showings at 3,890-98 feet. The well continues to bail some free oil while drilling continues below 4,200 feet.

A one-half mile northern outpost was given the rapidly expanding Harper area. Weekly Oil Corp. of Fort Worth staked location for No. 1 Cowden, section 14, Block 44, T.&P. Survey.

Crockett County

A new oil field, yet unnamed, was assured in the extreme northwestern corner of Crockett County last week on University lands. The discovers, L. H. Choate and Fred Hogan of Midland completed their No. 1-K University on the pump, gauging 104 bbls. in 24 hours after a small shot. Total depth is 1,538 feet. Location is 9 miles northwest of the Toborg pool near Yates in Pecos County, and 6 miles southeast of the McCamey field in Upton County. Three offsets have been staked for immediate drilling, and Standard Oil Co. of Texas began the drilling of a wildcat 2½ miles northeast in Upton County. Choate & Hogan took this acreage on a farm-out basis from the Humble Oil & Refining Co.

Four miles west of the Yates field, another shallow producing pool was opened by Cardinal Oil Co. No. 1-36 White and Baker, flowing 35 bbls. of 29-gravity oil in 24 hours.

WEST CENTRAL TEXAS

Resumption of development in the new Ordovician area of southwestern Callahan County, 3 miles northeast of Oplin, featured a week lagging in activity for the West Central Texas district. Hughes Petroleum Co. standardized No. 1 Andrew Johnson, about 4 miles southeast of its first Ordovician well, and drilled out cement plugs at 3,903 feet with a spudder for deepening to the top of the Ellenburger expected near 4,100 feet. The test is in section 152, G.H.&H. Survey.

Second rotary to start, a southeast diagonal offset to the discovery contracted by Hughes for Oscar Cooper and Harold Weeks of New York, set surface pipe and drilled ahead in section 379, George Hancock Survey. Another rotary to the southwest was to be moved in this week by Ed McAdams, Los Angeles, Calif., contractor.

A one-section spread northeast of the Avoca field in Jones County was indicated by a test drilled by Fain & McGaha Oil Corp. and Sinclair Prairie Oil Co. on property owned by the Swedish Lutheran Evangelical Church when it cored into saturation at 3,226 feet and set pipe. The test, in the northeast of section 190, B.B. B.&C. Survey, is almost in the backyard of the church house.

Humble Oil & Refining Co. failed to obtain a water shutoff by cementing its No. 1 I. N. Irwin, promising wildcat showing saturation in the Fisher County lime, 1½ miles east of the Noodle Creek field in southwestern Jones County. A spudder was to be used in recementing the hole, saturation having been cored previously from 2,550-67 feet. It is in the southwest of section 48-18, T.&P. Survey.

Forest Development Corp. and P. S. Hendrick No. 1 T. G. Hendrick, extreme northwestern Shackelford County Palo Pinto wildcat, which has logged several oil showings and a shallow 15,000,000-foot gas flow, is nearing its objective, drilling shale at 3,050 feet.

Also in Shackelford, the Ivy pool's third Palo Pinto producer loomed in Iron Mountain No. 2 O. E. Beck, twin location to a shallow King sand producer, when it found saturation at a flat 3,200 to 3,201 feet and cemented pipe. It is east of the first deep lime producer, being in the NW cor. section 162, B.B.B.&C. Survey.

PANHANDLE DISTRICT

Field work continues to decline in the Panhandle district until it is nearing a new low since the 1926 boom. Seven locations were made and three completions reported, all within the proven area, last week.

Heading the Panhandle interest is Lone Star Gas Co.'s new pool opener in Gray County, section 118, Block 23, H.&G.N. Survey. Its No. 1 Fowler, originally drilled in an attempt to extend the gas producing area, was bottomed at 2,500 feet, at which depth it blew in and later began spraying large quantities of oil. The Lone Star company is preparing to run casing and build storage.

WEST TEXAS COMPLETIONS

Andrews County

Humble Oil & Refining Co. No. 4 Walker, abandoned location.

Crane County

Atlantic Refining Co. No. 2-A University, 3,350-3,555 feet, 3,621 feet. Gulf Oil Corp. No. 172 McElroy, 2,740-2,971 feet, 466 bbls. Humble Oil & Refining Co. No. 18 Tubbs, 4,360-4,435 feet, 844 bbls.

Crockett County

Will Oldhausen No. 1 J. W. Owens, abandoned location.

Ector County

Atlantic Refining Co. No. 6 Slator, 4,190-4,313 feet, 754 bbls. Barnsdall No. 7 Cowden, 4,072-4,193 feet, 1,132 bbls.; No. 12 H. Foster, 4,120-4,250 feet, 1,322 bbls. Broderick & Calvert No. 5 Parker, 4,010-4,175 feet, 2,436 bbls. Devonian Oil No. 3-F Scharbauer, 4,175-4,210 feet, 841 bbls. Gulf Oil Corp. No. 81 Goldsmith, 4,090-4,210 feet, 1,892 bbls.; No. 82 Goldsmith, 4,075-4,195 feet, 912 bbls.; No. 83 Goldsmith, 4,135-4,205 feet, 1,016 bbls. Humble Oil & Refining Co. No. 10-C Scharbauer, 4,159-94 feet, 102 bbls. Phillips Petroleum No. 5 Kloh, abandoned location. Sunray Oil Co. No. 2-D H. C. Foster, 4,188-4,277 feet, 689 bbls. T. & P. Oil No. 19 Scharbauer, 4,170-4,260 feet, 2,068 bbls.; No. 20 Scharbauer, 4,170-4,258 feet, 2,538 bbls.

Fisher County

Montour Production Co. No. 4 E. Smith, 3,571-84 feet, 408 bbls.

Howard County

Gulf Oil Corp. No. 6 Chalk, 2,920-3,223 feet, 720 bbls. Moore Brothers No. 2-A Snyder, 2,635-2,810 feet, 795 bbls.

Pecos County

A. W. Rutter and others No. 4 University, 1,621-41 feet, 145 bbls. Stanolind Oil & Gas Co. No. 7 Goodrich, abandoned location. Cahran and others No. 1 Pecos Valley, abandoned location.

Upton County

Choate & Hogan No. 3 Sanger, 2,324-2,430 feet, 950 bbls. Bert Fields No. 15 Anna Gibbs, 2,277-88 feet, 784

(Continued on Page 114)

Kansas Developments

By
DAL DALRYMPLE

Graham County Pool Opener Rated at 2,105 Barrels Daily

Completion of the first oil producer in Graham County, Kansas, was recorded the past week at Continental Oil Co. and Cities Service Oil Co. No. 1 Morel, C W half E half NE section 16-9-21w, about 13 miles northeast of the Wakeeney pool in Trego County and a similar distance northwest of the Zurich pool in Rooks County, the nearest producing areas.

The Graham County discovery made potential of 2,105 bbls. of oil daily from Arbuckle lime topped at 3,711 feet, total depth 3,720 feet. Gravity of the oil was 31 degrees, corrected. Simpson zone was topped at 3,697 feet.

A Barton County pool opener also was at completion stage at Crown Petroleum Co., Elmer Ash and J. H. Hershey No. 1 Schartz, SW SE NW section 7-20-11w, 1½ miles south of Ellinwood. It made potential of 473 bbls. of oil daily from Arbuckle lime topped at 3,346 feet, total depth 3,352 feet.

Completion of a pool opener in southern Stafford County also was recorded at the week-end at National Refining Co. No. 1 Bonham, SW SW SE section 28-25-12w, southwest of the town of Stafford. Arbuckle lime was found at 4,200 feet and the hole was bottomed at 4,213 feet. It was acidized and made potential of 330 bbls. of oil daily.

Another Barton County wildcat apparently was opening a pool at C. L. Price No. 1 Wondra, NW NE NE section 10-17-12w, southwest of the Kraft pool. The crew was preparing to test after the oil rose 700 feet in the hole from Arbuckle lime at 3,342 feet.

The Lindsborg pool in McPherson County was extended one fourth mile southward at Carter Oil Co. No. 1 Nelson, C E half NE section 7-17-13w. It was acidized and made potential of 338 bbls. of oil daily from Viola lime at 3,372 feet, total depth.

Wildcat Completions

Hays & Sackrider No. 1 Windholtz, NE cor. section 2-13-16w, between the Emmeram and Fairport areas in eastern Ellis County, was completed for potential of 150 bbls. of oil, cutting 25 per cent water. Top of anhydrite was 980 feet, Topeka lime 2,755 feet, Kansas City lime 3,101 feet, total depth 3,242 feet. It was acidized.

Gulf Oil Corp. No. 1 Punker, C E half NW SW section 22-15-12w, Russell County wildcat, topped Arbuckle lime at 3,302 feet and was dry and abandoned at 3,362 feet, total depth.

Simpson & Lampi and Atlantic Refining Co. No. 1 Boxberger, NE SE NW section 10-15-14w, wildcat in Russell County, found Arbuckle lime at 3,249 feet, had a hole full of water at 3,260-65 feet, total depth, and was abandoned.

C. L. Price No. 1 Hammeke, NE NE SW section 12-18-12w, Barton County wildcat, was abandoned after getting a hole full of water at 3,433 feet, total depth, and plugging back to 3,429 feet. Top of Arbuckle lime was 3,415 feet.

Palmer Oil Corp. and others No. 1 Warwick, C NW section 29-31-10w, wildcat in Barber County, topped Wilcox sand at 4,781 feet, total depth 4,815 feet, perforated casing without result and was abandoned.

Arthur Brewer No. 1 McDaniels, NW cor. section 24-30-4e, Cowley County wildcat, had Mississippi lime at 2,912-30 feet, total depth, and was dry and abandoned.

Union Oil & Refining Co. No. 1 Laidlow, CEL NW SW section 35-25-15, wildcat in Woodson County, topped Mississippi lime at 1,397 feet and was dry and abandoned at 1,424 feet, total depth.

Pacific Mid-West Oil Co. No. 1 Rexford, NE SE SW section 8-30-29w, was abandoned at 200 feet, and Bryan & West No. 1 Brown, NE NE SW section 5-33-27w, was an abandoned location. Both were in Meade County.

P. G. Reynolds No. 1 Watkins, C SW section 32-28-28w, wildcat location in Gray County, was reported abandoned.

Other recent wildcat completions in Kansas included:

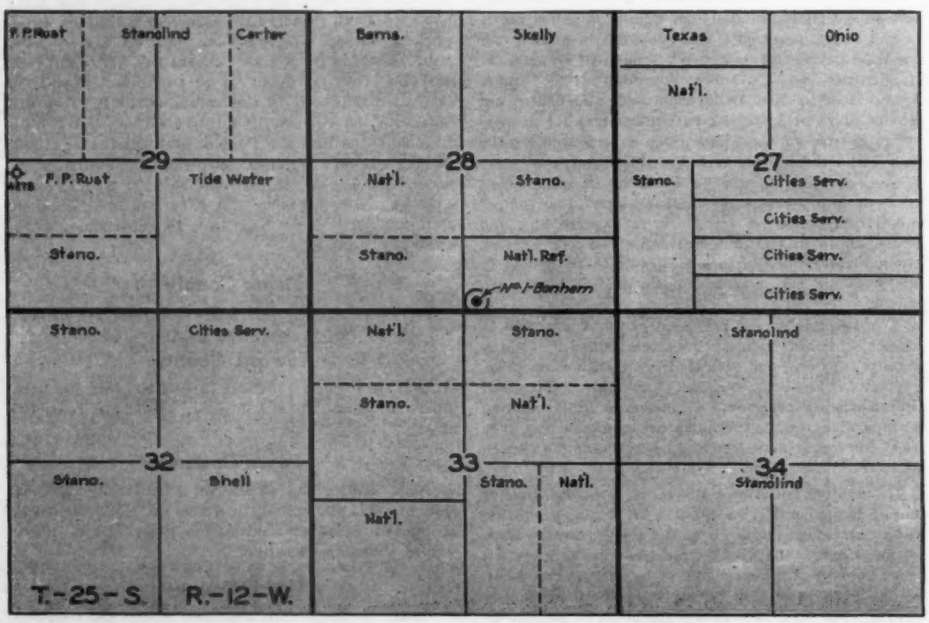
Jones and Shelbourne and others No. 1 Kuhnle, SE SE NW section 4-15-12w, northeast of the Sellens area in Russell County, made potential of 945 bbls. of 37.7-gravity oil and was completed in lime pay at 3,035-45 feet, total depth.

Amerada Petroleum Corp. and Westgate-Greenland Oil Co. No. 1 Johns, SE cor. section 25-22-5w, opened a pool in the Buhler area, northeastern Reno County. It had Simpson sand at 3,896 feet, total depth 3,902 feet, and made potential of 912 bbls. of 40.5-gravity oil.

Pryor & Lockhart No. 1 De Selms, NE cor. section 3-25-11w, Stafford County wildcat, was dry and abandoned at 4,100 feet, total depth.

C. R. Craft No. 1 Pratt, NW NW SW section 36-26-15, Woodson County wildcat, was dry and abandoned at 1,577 feet, total depth.

McKnabb No. 1 Garrett, SE SW NW section 18-29-2e, wildcat in Sedgwick County, was dry and abandoned at 3,540 feet, total depth.



Mid-Continent Map Co., Wichita

A pool opener was completed in section 28-25-12w, southern Stafford County, Kansas

Russell County

Cities Service Oil Co. No. 1 Vaughn, SW cor. section 17-14-14w, an old well in Russell County, was deepened from 3,034 feet to 3,052 feet, acidized, made potential of 1,530 bbls. of oil and was recompleted.

Phillips Petroleum Co. No. 1 Carrie, SE SE NE section 18-14-14w, topped Kansas City lime at 3,044 feet, total depth 3,097 feet, was acidized, pumped 18 bbls. of oil and 8 per cent water in four hours and made potential of 86 bbls. of oil.

Earl Wakefield and others No. 1 Boxberger, SW SW NW section 6-14-14w, found Arbuckle lime at 3,319 feet, total depth 3,329 feet, had a hole full of water and was abandoned.

Cities Service Oil Co. No. 9 Strecker A, SW SE SW section 35-14-14w, found Arbuckle lime at 3,236 feet, was bottomed at 3,330 feet, plugged back to 3,044 feet, and was dry and abandoned.

Wells recently completed in Russell County included the following:

A. H. Witt No. 2-A Witt, NE NW SE section 3-14-15w, was bottomed at 3,312 feet, plugged back to 3,110 feet, and made potential of 1,164 bbls. of oil.

Wolf Creek Oil Co. No. 3 Mills 60, SE SE NW section 10-14-15w, was dry and abandoned at 3,289 feet, total depth.

Central Petroleum Co. No. 16 Rouback B, NW NW SE section 15-14-15w, was completed for potential of 638 bbls. of oil at 3,211 feet, total depth.

Coralena Oil Co. No. 1 Sellens, NW cor. section 17-15-13w, an old well deepened to 3,199 feet, was recompleted for potential of 2,597 bbls. of oil.

Gulf Oil Corp. No. 12 Hoffman, SW SE SW section 31-15-13w, was bottomed at 3,283 feet and made potential of 733 bbls. of oil, with 1,200 bbls. of water.

Same company's No. 13 Hoffman, NW SE SW section 31-15-13w, made potential of 1,949 bbls. of oil at 3,270 feet, total depth.

Cities Service Oil Co. No. 2 Tittle C, C S half N half NW section 13-15-14w, was bottomed at 3,357 feet, and made potential of 113 bbls. of oil, with 120 bbls. of water.

Ellis County

Cities Service Oil Co. No. 1 Rumsey, NW NW SW section 23-11-17w, Bemis district, Ellis County, topped Arbuckle lime at 3,366 feet, had pay at 3,369-73 feet, total depth, pumped 341 bbls. of oil in four hours and made potential of 2,046 bbls.

Sinclair Prairie Oil Co. No. 3 Romine, NW SW SW section 7-11-16w, Cress area, was completed as a water disposal well in Granite Wash at 3,865-71 feet, total depth.

Ellis County completions of the preceding week included:

Magnolia Petroleum Co. No. 11 Johansen, NE NE SE section 22-11-17w, was bottomed at 3,396 feet and made potential of 792 bbls. of oil.

Shell Petroleum Corp. No. 5 Rumsey, SW SW NW

section 23-11-17w, made potential of 2,642 bbls. of oil at 3,388 feet, total depth.

Champlin Refining Co. No. 2 Hadley B, NE SE SW section 29-11-17w, made potential of 1,598 bbls. of oil at total depth of 3,635 feet.

Western Kansas Oil & Refining Co. No. 1 Cole, NE SE SE section 24-11-20w, was dry and abandoned at 3,635 feet, total depth. It was a wildcat west of the Solomon area in the northwestern part of the county.

J. J. Hall No. 1 Smith A, SW SW NE section 14-12-16w, was dry and abandoned at 3,418 feet, total depth.

Barton County

Armer and Vernon Oil & Gas Co. No. 5 Ainsworth. SW NE SE section 33-16-13w, Ainsworth pool, Barton County, had Arbuckle lime at 3,384-91 feet, total depth, and made potential of 1,607 bbls. of oil.

Shell Petroleum Corp. No. 1 Schneider B, NE NE NW section 1-16-14w, Trapp district, had Arbuckle lime at 3,277 feet, total depth 3,291 feet, was acidized, pumped 150 bbls. of oil and 15 bbls. of water in four hours and made potential of 977 bbls. of oil.

Same operator's No. 1 Schneider C, NW NW NE section 2-16-14w, found Arbuckle lime at 3,309 feet, total depth 3,337 feet, plugged back to 3,320 feet and was acidized. It swabbed 394 bbls. of oil and 15 bbls. of water in seven hours and made potential of 529 bbls. of oil, with 646 bbls. of water.

Derby Oil Co. No. 13 Frees, SW SW NE section 3-17-11w, extended the Trapp pool one-fourth mile northward. It pumped 338 bbls. of oil in four hours and made potential of 2,031 bbls., from Arbuckle lime topped at 3,320 feet, total depth 3,333 feet.

Stanolind Oil & Gas Co. No. 2 Thomas, SW cor. section 35-19-11w, Silica district, found Arbuckle lime at 3,287 feet, total depth 3,300 feet, was acidized and made potential of 1,625 bbls. of oil.

Magnolia Petroleum Co. No. 6 Roetzel, NW NE NE section 25-20-11w, South Silica area, pumped 268 bbls. of oil in four hours and made potential of 1,607 bbls. of oil. Top of Arbuckle lime was 3,260 feet, total depth 3,272 feet.

Recent Barton County completions included the following:

Shell Petroleum Corp. No. 5 Schneider B, NW cor. section 1-16-14w, made potential of 2,363 bbls. of oil at 3,321 feet, total depth.

Same company's No. 2 Schneider C, NE cor. section 2-16-14w, was bottomed at 3,324 feet and made potential of 1,701 bbls. of oil.

Same company's No. 2 Sausen, NE cor. section 13-16-14w, made potential of 945 bbls. of oil and was completed at 3,357 feet, total depth.

Sinclair Prairie Oil Co. No. 2 Grossardt, SE NE SW section 10-17-11w, was dry and abandoned at 3,337 feet, total depth.

Marion County

Lost Springs Oil Co. No. 6 Merrilott, C S half NE NW section 23-17-4e, Lost Springs pool, Marion County, found Chat at 2,332 feet, total depth 2,392 feet, and pumped 50 bbls. of oil in 24 hours.

Reno County

Transwestern Oil Co. No. 5 Teten, SE SW NE section 12-23-4w, Burrton field, Reno County, topped Chat at 3,258 feet, total depth 3,433 feet, perforated casing and made potential of 284 bbls. of oil, with some water.

McPherson County

E. B. Shawver No. 1 Lagree, SE cor. section 17-19-1w, an old well in the Ritz-Canton area, McPherson County, was deepened from 3,385 feet to 3,453 feet, pumped 40 bbls. of oil in 24 hours and was completed as a 25-bbl. minimum well.

Continental Oil Co. No. 3 Boechner A, SW SW NW section 28-21-1w, Graber pool, was a completion of the previous week. It made potential of 350 bbls. of oil at 3,349 feet, total depth.

Rice County

Cities Service Oil Co. No. 1 Lewis, SW SE NE section 11-18-8w, Geneseo district, Rice County, had Arbuckle

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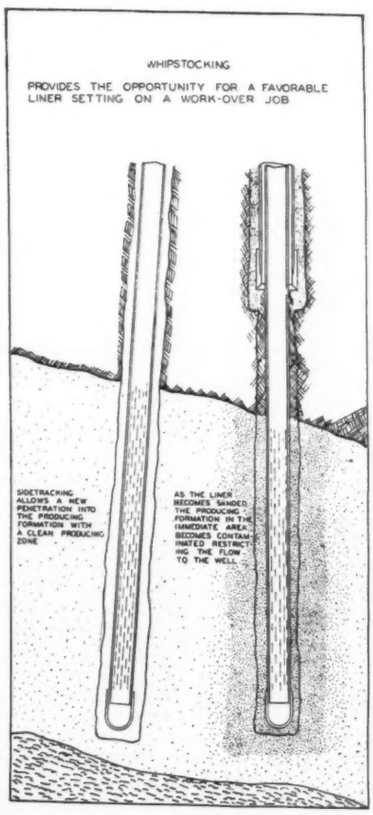
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lime at 3,228 feet, total depth 3,257 feet, was acidized and made potential of 1,300 bbls. of oil.

Continental Oil Co. and others No. 6 Nickel, SE NE SW section 13-18-8w, pumped 249 bbls. of oil in four hours, making potential of 1,117 bbls. Top of Arbuckle lime was 3,227 feet, total depth 3,232 feet.

Cities Service Oil Co. No. 1 Purcell, NE NE SE section 28-19-9w, Chase area, made potential of 724 bbls. of oil after acidizing Arbuckle lime topped at 3,184 feet, total depth 3,212 feet.

Mid-Continent Petroleum Corp. No. 9 Hartle, NE SW NW section 15-20-9w, Keesling area, was drilled and completed as a salt water disposal well in Granite at 3,875-3,905 feet, total depth.

Four wells were completed in Rice County the previous week. Shell Petroleum Corp. No. 2 Zajic, SE NW NE section 13-18-8w, made potential of 2,240 bbls. of oil at 3,180 feet, total depth.

Republic Natural Gas Co. No. 2 Deweese, SW SW NW section 32-20-7w, was bottomed at 3,350 feet and made potential of 96 bbls. of oil.

Rose Spring Drilling Co. No. 3 Mantel, NW NE NE section 18-20-10w, was a 15-bbl. well at 3,367 feet, total depth.

Mid-Plains Oil Co. No. 1 Van Blarcom, CEL NW section 10-21-7w, made potential of 691 bbls. of oil at 3,375 feet, total depth.

Estimated Daily Production

Estimated daily production for Kansas for the week ending April 16 and for the preceding week was as follows:

	Barrels	
	April 16	April 9
Oxford City	2,250	2,050
Burrton	11,700	11,550
Ritz-Canton	5,725	6,575
Graber	2,275	1,300
Hollow-Nikkel	3,325	3,850
Lerado	925	825
Voshell	2,775	3,125
Wellington	2,775	2,325
Ellsworth County:		
Lorraine	2,200	2,525
Other pools	995	1,225
Rice-Barton counties:		
Bloomer	2,550	2,050
Chase	4,900	5,700
Geneseo	1,800	2,100
Raymond	475	1,150
Silica	11,325	9,075
Silica—South	2,155	2,150
Keesling	800	850
Wherry	3,575	3,900
Miscellaneous Rice	3,350	3,235
Miscellaneous Barton	4,555	4,830
Russell County:		
Fairport	1,110	2,020
Gorham	1,155	1,695
Russell	940	1,020
Sullivan	5,625	7,665
Trapp	7,255	8,180
Miscellaneous Russell	6,480	6,595
Sedgwick County:		
Valley Center	950	1,055
Miscellaneous	2,690	2,880
Ellis County:		
Bemis	3,150	4,700
Miscellaneous	1,500	2,710
Kingman County	416	580
Stafford County	1,990	2,030
Greenwood County	9,100	9,150
Butler County	15,000	15,800
Other fields	22,134	22,405
Total Kansas	149,925	158,875

Ness County

Oriental Oil Co. No. 3 Tenny, NW SE SE section 19-18-25w, Ness County, was an abandoned rig.

Same company's No. 2 Shiner, NW NW NE section 19-18-25w, reported the previous week, was abandoned at 1,875 feet, total depth.

Butler County

Vickers Petroleum Co. No. 3 McCraner C, NE NW NW section 1-25-3e, Potwin area, Butler County, had Mississippi lime at 2,706 feet, was bottomed at 2,710 feet, acidized and pumped 69 bbls. of oil the first day.

Stafford County

Stanolind Oil & Gas Co. No. 1 Drach, SE SE SW section 12-22-13w, Drach area, Stafford County, had Arbuckle lime at 3,728 feet, total depth 3,772 feet, water intruded and it was abandoned.

Atlantic Refining Co. and Phillips Petroleum Co. No. 2 McNaughten B, C W half W half NW section 27-24-13w, St. John area, topped Arbuckle lime at 4,044 feet, was bottomed at 4,060 feet, acidized and made potential of 2,612 bbls. of oil.

Three wells were completed in Stafford County the past week, in addition to a wildcat failure. Stanolind Oil & Gas Co. No. 1 Scheib, SW SW SE section 12-22-13w, made potential of 1,859 bbls. of oil at 3,682 feet, total depth.

Stanolind Oil & Gas Co. and others No. 1 Paulson B, NW NW NE section 26-24-11w, was bottomed at 3,810 feet and made potential of 473 bbls. of oil.

Same company's No. 2 Volker A, NW SW NE section 23-24-11w, an old well, was recompleted at 3,811 feet, total depth, for potential of 1,134 bbls. of oil.

Torry & Feaster and others No. 1 Mueller, SE cor. section 29-21-12w, was bottomed at 3,607 feet and made potential of 1,210 bbls. of oil.

Woodson County

C. L. Sheedy and others No. 13 Klick, SW NW SE section 20-25-14, Woodson County, was shot and pumped 15 bbls. of oil daily from Bartlesville sand topped at 1,405 feet, total depth 1,440 feet.

Oko Oil Co. No. 1 Headley, NW cor. section 33-23-14, had Mississippi lime at 1,685 feet, total depth 1,712 feet, and was estimated good for 3 bbls. of oil daily.

Three Woodson County completions of the previous week were:

C. L. Sheedy and others No. 7 Tipton, SW NE NW section 28-25-14, total depth 1,440 feet, pumped 25 bbls. of oil daily.

Same operators' No. 1-A Murphy, NE cor. section 30-25-14, was a 10-bbl. pumper at 1,430 feet, total depth.

Max Reynolds No. 1-A Specht, NE NW NW section 34-25-14, was dry and abandoned at 1,550 feet, total depth.

Barber County

James Davis No. 1 Nuckolls, SW SW NE section 30-31-11w, Whelan pool, Barber County, found Chat at 4,292 feet, was bottomed at 4,314 feet, and made potential of 1,049 bbls. of oil.

Ellsworth County

Magnolia Petroleum Co. No. 1 Boye, NE NE SE section 17-16-10w, was an Ellsworth County completion of the previous week. It pumped 79 bbls. of oil and 170 bbls. of water at 3,371 feet, total depth.

Harvey County

Inca Petroleum Co. and others No. 1 Wilson, NW NW SW section 29-23-3w, was a recent Harvey County completion. It was temporarily abandoned at 3,190 feet.

Greenwood County

Shull Drilling Co. No. 4 Thrall, NE NW NE section 17-24-12, Greenwood County, was a recent abandonment at 1,850 feet, total depth.

Grant County

Panhandle Eastern Pipe Line Co. No. 1 Howell, C NE section 16-29-36w, Grant County, was bottomed at 2,761 feet, acidized and produced 13,000,000 feet of gas.

Kearny County

Tri-County Gas Co. No. 1 Masonic Home, CWL E half NW section 1-26-36w, Kearny County, was a recent completion at 2,710 feet, total depth. It produced 2,000,000 feet of gas.

Stevens County

Kuhn Brothers No. 3 Carpenter, C SE section 29-33-36w, was completed recently at 2,870 feet, total depth, for 14,259,000 feet of gas daily.

Oklahoma Fields

(Continued from Page 81)

Louis pool, Pottawatomie County, was Magnolia Petroleum Co. No. 4 Richardson, SE SW SW section 15-7-4. It topped Calvin sand at 3,198 feet, total depth 3,207 feet, flowed 580 bbls. of oil in 14 hours and flowed as high as 1,000 bbls. of oil in 24 hours.

J. F. Smith and others No. 2-A Hathcock, SW SW SE section 14-7-4, found Calvin sand at 3,178-84 feet, total depth, and flowed 101 bbls. of oil in 24 hours.

Magnolia Petroleum Co. No. 7 Banta, NE SE SE section 14-7-4, flowed 60 bbls. of oil in 24 hours from Calvin sand at 3,124-37 feet, total depth 3,160 feet.

New work in Pottawatomie County: Pioneer Drilling Co. and others No. 1-A Louis, SW NW SE section 15-7-4, location; Judge Holden No. 1 Gibbs, NE cor. section 23-7-4, on a 1-acre tract, had dug cellar and pits; Dixie Oil & Gas Co. No. 1-A Richards, SE NE SE section 35-7-4, rigging up rotary.

Pontotoc County

Gillespie & Moore No. 1 Roberts, SW NW NE section 36-5-4, Bebee pool, Pontotoc County, had Viola lime at 2,625-60 feet, total depth 2,700 feet, was shot and pumped 75 bbls. of oil and 5 bbls. of water in

16 hours and headed off. It was completed, pumping 40 bbls. of oil and 5 bbls. of water in 24 hours, heading off.

Stanolind Oil & Gas Co. No. 3 Allen, SE NE NE section 32-5-5, an old Bebee well, was plugged back from 2,590 feet to 2,563 feet, shot and acidized, and pumped 19 bbls. of oil and 13 bbls. of water in 24 hours. Same company's No. 6 Norris E, SW SW SE section 25-2n-6, an old Fitts well, was deepened from 4,315 feet to 4,449 feet, plugged back to 3,833 feet. drilled out to 4,125 feet, acidized and pumped 41 bbls. of oil and 123 bbls. of water, net, in 24 hours.

Lloyd and others No. 1 Lloyd, NW NW SE section 6-3n-7, East Ada area, was a location. Lake Oil Co. No. 3 Gray B, SE NE SW section 25-5-4, had dug cellar.

Creek County

Carpenter & Houser No. 2 Burgess, SE NE SE section 25-18-10, Kellyville district, Creek County, had Red Fork sand at 1,740-71 feet, total depth, and pumped 16 bbls. of oil in 24 hours.

Johnson Oil Refining Co. No. 9 Evans, NW SW NW section 29-19-9, Mannford district, was completed as a 4-bbl. pumper. Top of Red Fork sand was 2,357 feet, total depth 2,402 feet.

Whitten and L. Wilcox No. 1-A Taconey, SE SW NW section 11-17-10, Kellyville district, was dry and abandoned at 1,795 feet, total depth.

Jordan Oil Co. No. 1 Smith, NW SE NW section 13-17-8, had Bartlesville sand at 2,725-87 feet, total depth, and was dry and abandoned.

Oklahoma Gas Plants, Inc., No. 1 Boling, NE NW NW section 25-17-7, an old well in the Cushing field, was deepened from 2,450 feet to Prue sand at 2,500-51 feet, total depth, pumped 16 bbls. of oil daily and was recompleted.

Link Oil Co. No. 13 Jones, SW NE NE section 32-18-7, an old well, was deepened from 2,171 feet to Tucker sand at 2,639-59 feet, total depth, and plugged back to 2,654 feet. It was recompleted as a 10-bbl. pumper.

J. B. Grieves No. 2 Rentie, NW SE SE section 32-19-9, an old well, was deepened from 2,983 feet to Arbuckle lime at 3,210 feet, total depth 3,375 feet, plugged back to 3,160 feet, and pumped 1 bbl. of oil and 20 bbls. of water daily.

Gregg Sawyer No. 1 Hayden, NW NW SW section 13-19-9, Mannford district, had Cleveland sand at 1,258 feet, total depth 1,313 feet, and pumped 12 bbls. of oil daily.

Same operator's No. 2 Hayden, NW SW SW section 13-19-9, was dry and abandoned at 2,251 feet, total depth.

Fierson & Kirchner No. 1 Morton, SE NE SE section 27-14-10, an old well, was deepened from 2,675 feet to Misener sand at 3,234 feet, total depth 3,263 feet, and flowed 347 bbls. of oil in the first 24 hours.

New work in Creek County: Fierson & Kirchner No. 2 Morton, SW NE SE section 27-14-10, location: B. H. Korf No. 1-A Stark, NW NW NE section 5-16-9, drilling at 200 feet; Oklahoma Gasoline Plants, Inc., No. 1 Carman, NW SW NW section 30-17-8, drilling at 900 feet; O. M. Ireland and others No. 1-A Wilkinson, SE NE SE section 10-17-10, location; L. B. Jackson No. 4 Alberta, SW NE NW section 25-18-9, drilling at 1,800 feet; Johnson Oil Refining Co. No. 2 Hayden F, SE SE NW section 6-18-10, location; Big Four Petroleum Co. No. 1 Vance, NW SW NE section 24-19-7, drilling at 1,285 feet; J. P. Brady & Sons No. 2 Duncan, C NE NE section 19-19-9, plugged back from 2,404 feet to 2,393 feet, running casing; Darby Petroleum Corp. No. 1 McBirney, SE cor. section 24-19-9, drilling at 125 feet.

Okmulgee County

Oklahoma Oil Co. No. 2 White, NE NE SE section 5-15-14, was dry and abandoned at 2,058 feet, total depth.

J. E. Dow No. 2-B Adams, NE SE SW SW section 12-14-14, was abandoned at 1,403 feet.

Butler and others No. 2 McKinney, NE NW SE section 3-14-14, was an abandonment at 800 feet.

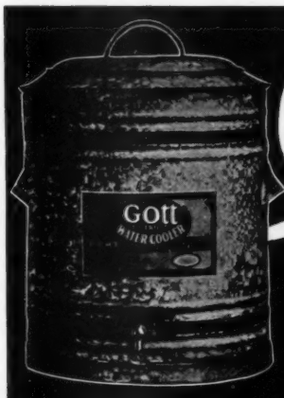
J. Garfield Buell No. 2 Replogle, SE NW SW section 4-13-11, flowed 133 bbls. of oil in 24 hours after a shot and was completed at 3,193 feet, total depth.

Howard & Holofield No. 1-A Jefferson, NW NW SW section 33-15-15, was bottomed at 1,383 feet and completed as a 15-bbl. pumper.

Osage County

Pure Oil Co. No. 178 Osage, NW NW NE section 5-23-8, Osage County, was completed as a 15-bbl. pumper in sand at 695-723 feet, after a shot.

Sidwell Drilling Co. No. 6 Osage, SE NW SW sec-



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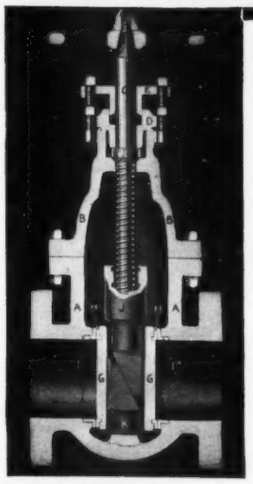

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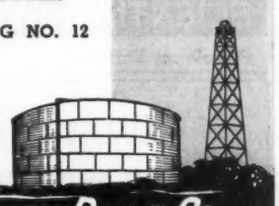

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tion 27-24-11, had Bartlesville sand at 1,680-1,727 feet, total depth, was shot and swabbed 10 bbls. of oil and 3 bbls. of water daily.

M. L. Brenner No. 2 Osage, SE SE NW section 1-22-9, was dry and abandoned in sand at 164-76 feet, total depth, with a hole full of water.

New work in Osage County: Norbla Oil Co. No. 2 Osage, SW SW SE section 30-22-9, location; Pure Oil Co. No. 107 Osage, SW NW SE section 9-23-8, an old well, rigging up to deepen; Barnsdall Oil Co. No. 3 Osage, NE SE SW section 23-24-10, location; Coralena Oil Co. No. 3 Osage, SE NE SW section 21-25-6, location; Rock & Latham No. 3-A Osage, NW SE NW section 2-28-10, location.

Lincoln County

Helmerich & Payne No. 3 Fitch, SW SE NE section 15-14-6, Sac and Fox pool, Lincoln County, found Prue sand at 2,912 feet, total depth 3,000 feet, and flowed 37 bbls. of oil in 24 hours.

L. & L. Development Co. No. 1-A Ransin, SW SW NW section 32-15-3e, Hoyt area, was dry and abandoned at 713 feet, total depth.

First reports of new activity in Lincoln County: Wilcox Oil & Gas Co. No. 3 De Lozier, NE SE SW section 10-14-6, Sac and Fox area, drilling below 1,825 feet; Mudge Oil Co. No. 2 Robertson, SW NE SW section 10-14-6, drilling below 2,240 feet; Jones Associated Oil Co. No. 2 Wray, NW SW SE section 10-14-6, rig; Exchange Drilling Co. No. 1 Wray, SW NW SE section 10-14-6, location; Wilcox Oil & Gas Co. No. 2 Fitch, NW NW NE section 15-14-6, rig.

Pawnee County

Johnson Oil Refining Co. No. 5 Beyl, C NE section 27-20-9, Keystone district, Pawnee County, was completed at 2,178 feet, total depth, producing 5,500,000 feet of gas daily.

Same company's No. 3 Garton, C W half W half SE section 22-20-7, an old well, was deepened from 2,559 feet to 2,672 feet, and was preparing to pump. J. B. Sheips No. 7 Dunn, SW NE SE section 10-20-8, was drilling below 560 feet.

Muskogee County

Muskogee Natural Gas Co. No. 3 Evans, NW SW SE section 32-14-19, was dry and abandoned at 1,538 feet, total depth.

Logan County

Magnolia Petroleum Co. No. 1 School Land No. 3, NE NW SE section 14-17-1w, Langston area, Logan County, topped Wilcox sand at 5,139 feet, total depth 5,165 feet, plugged back to 4,917 feet, water intruded and it was abandoned.

Hughes County

S. P. Brown and others No. 1-A Hall, NW NE SE section 8-5-8, Allen district, Hughes County, was bottomed at 1,080 feet, plugged back to 990 feet, and was dry and abandoned.

Caddo County

Another producer was completed on the extreme west side of the Cement field, Caddo County, at Willard L. Miller No. 2-A Garner, SW NW SW section 26-6-10w. It was bottomed at 4,462 feet, plugged back to 4,050 feet and perforated casing at 4,016-28 feet. It flowed 1,133 bbls. of oil through tubing in 22 hours, with gas gauging 4,782,000 feet. Gravity of the oil was 37.9 degrees.

Carter County

Carlock & Dexter No. 1 Tillis, SW SW SE section 4-4s-3w, an old well in the Healdton pool, Carter County, was recompleted as a 10-bbl. pumper after deepening from 1,083 feet to 1,111 feet.

Same operators' No. 1 Broken Shoulder, NE SW SW section 4-4s-3w, an old well being deepened, was drilling at 1,055 feet. Kewanee Oil & Gas Co. No. 29 Keck, NE cor. section 5-4s-3w, was a location.

Stephens County

Gulf Oil Corp. No. 14 Bowers, NW SW SW section 13-2s-4w, Stephens County, Milroy pool, pumped 10 bbls. of oil and 15 bbls. of water after plugging back from 616 feet, total depth, to 611 feet and perforating casing.

Same company's No. 15 Bowers, SE SW NW section 13-2s-4w, Milroy pool, was a machine. George L. Pace and others No. 17 Allen, SW SE NE section 3-2s-3w, was drilling below 1,090 feet. C. W. Tomlinson No. 2-A Montgomery, NW NW SE section 11-2s-3w, was a derrick.

Atoka County

Bokans & Joels No. 3 Miller, NE SW NE section 9-1s-14, Redden pool, Atoka County, was abandoned after being shut down at 80 feet because of litigation.

Other New Work

In Payne County, Tom Palmer and others No. 1 Liter, SW SW NW section 9-19-1w, a Tonkawa sand test, had dug cellar and pits.

In Noble County, Lake Petroleum Co. and others No. 1 Guthrie, SW NW SE section 31-21-2w, North Lucien pool, was a cellar.

In Okmulgee County, Vierson Drilling Co. No. 3 Beaver, SE NW NW section 6-14-13, was drilling below 300 feet; J. L. Selby No. 6-A Doneghy, SE NW NE section 3-14-14, was drilling below 540 feet; B. K. Young, trustee, No. 1 Bruner, NW SW SE section 5-15-14, location.

La.-Ark. Fields

(Continued from Page 79)

and bottom, and with the testing tool open for 10 minutes, the working pressure reached 50 lbs. at the end of the 10-minute test. The top choke was then closed for 6 minutes, at the end of which time the pressure built up to 90 lbs. The last 48 stands of pipe showed oil and salt water, with oil at the top of 45 lengths. Twice, while breaking down drill stem, the well flowed for short intervals, once for 13 minutes at the seventeenth stand and again for three minutes at the tenth stand. Operators are drilling ahead to test deeper formations, and at last reports were below 6,462 feet. No. 1 Phillips is about 5 miles east of the Kerr-Lynn Oil Co. No. 1 Barnett, which was completed last week at 7,646-49 ft. in the Smackover lime. Whether Phillips will open a new field or extend that opened by Kerr-Lynn is still a matter of conjecture.

Shuler Developments

The Shuler field, center of most active drilling in South Arkansas, added three new oil wells in the past week. Lion Oil Refining Co. completed No. 2-C D. S. and J. C. Morgan, section 18-18-17 for 664 barrels per day through a 32/64-inch choke with tubing pressure of 350 lbs. and casing pressure of 650 lbs. Total depth is 7,623 feet.

Lion Oil Refining Co. brought in No. 4-A Edna Morgan, section 18-18-17 for 757 barrels per day through a 16/64-inch choke with tubing pressure 1,520 lbs. and casing pressure 2,240 lbs. Total depth is 7,620 feet.

Marine Oil Co. No. 1 Miller, Lot 1, section 18-18-17 made an initial gauge of 1,207 barrels per day through a 20/64-inch choke, with tubing pressure 800 lbs. and casing pressure 250 lbs. Total depth is 7,729 feet.

Estimated Daily Production

Estimated daily gross production of all companies week ending April 16:

NORTH LOUISIANA

	Barrels
Bellevue	710
Caddo light	3,875
Caddo heavy	2,385
Converse	585
Cotton Valley heavy	95
Cotton Valley light	*7,420
De Soto and Red River	1,465
Elm Grove	385
Haynesville	2,935
Holly	90
Homer	2,600
Lisbon	10,985
Pleasant Hill	100
Rodessa	42,055
Sarepta-Carterville	195
Sligo	345
Sugar Creek	345
Urania	2,875
Zwolle	1,010
Total	80,455

SOUTH ARKANSAS

Buckner	440
Champagnolle	1,210
El Dorado	1,860
Lisbon	260
Miller County	375
Nevada	650
Rodessa	8,130
Shuler	19,195
Smackover light	2,040
Smackover heavy	15,860
Stephens	540
Troy	1,275
Urbana	1,250
Village	335
Total	53,420

Texas side of Rodessa field 38,185 bbls. daily.

*3,435 bbls. is distillate.

North and East Texas

By MITCHELL TUCKER

Added Deep Tests in Archer; Wildcat Misses K. M. A. Pay

WICHITA FALLS, Tex., Apr. 18.—The K.M.A. pool of Wichita and northern Archer counties continues to show a steady increase in new locations and completions as the average daily production figure for the week reached a new all time high of 14,450 bbls.

Much of the attention in the North Texas district remained centered for another week in the rapidly developing search for new deep sands in Archer County as several new wildcat locations were staked. Mazda Oil Corp. staked No. 1 W. T. Finley, on a 156-acre block in the western part of the Abner Nails Survey, Abstract 325, 1 mile due north of the Panther field discovery. One mile southeast of the discovery, Ligon & Burns staked No. 1 A. P. Nichols in Lot 1, Block 30, A.N.T.C.L. Survey, and No. 2 in Lot 3 of the same block and survey. Adams Oil & Gas Co. entered the activity by building derrick for their No. 1 G. Moer, proposed 4,000-foot test in Lot 21, Blark & Plumb Subdivision, 1 mile east of Scotland in the eastern part of the county and near the Clay County line.

The Archer County deep sand search has received its first setback, as a wildcat test 3 miles northeast of the discovery is shut down temporarily without having found the K.M.A. pay. The J-K-L Oil Co. No. 1 H. Ford, in the T. Cecil Survey, Abstract 982, suspended operations at the close of the week at a total depth of 4,066 feet. Whether the test will be drilled deeper depends on the outcome of an electrical survey which was run on the hole following its suspension of activities. During the course of drilling, this wildcat found an unidentified sand at 3,299-3,340 feet which will be tested before abandonment, should deeper exploration fail.

Blackwell Oil & Gas Co. and Helmerich & Payne No. 2 Wilson, 1,000 feet southeast of the discovery well in the Panther field, Archer County, will be carried to its contract depth of 5,300 feet even though good saturation was found in the K.M.A. pay section at 3,859-88 feet. It is now drilling below 4,400 feet. The No. 1 Wilson was originally projected to this depth but when prolific pay was found in the K.M.A. lime, it was completed at its present depth. Another closely watched wildcat is C. W. Snoddy No. 1 Jones & Cullum, T. Freeman Survey, Abstract 134, about 2 miles northwest of the Panther discovery, which is drilling below 4,100 feet after coring 17 feet of saturation topped at 4,068 feet. Reno Oil Co. No. 10 Wilmont, section 4, S.P. Survey, about 2 miles southwest of the discovery, is drilling below 3,500 feet.

More Majors Enter Field

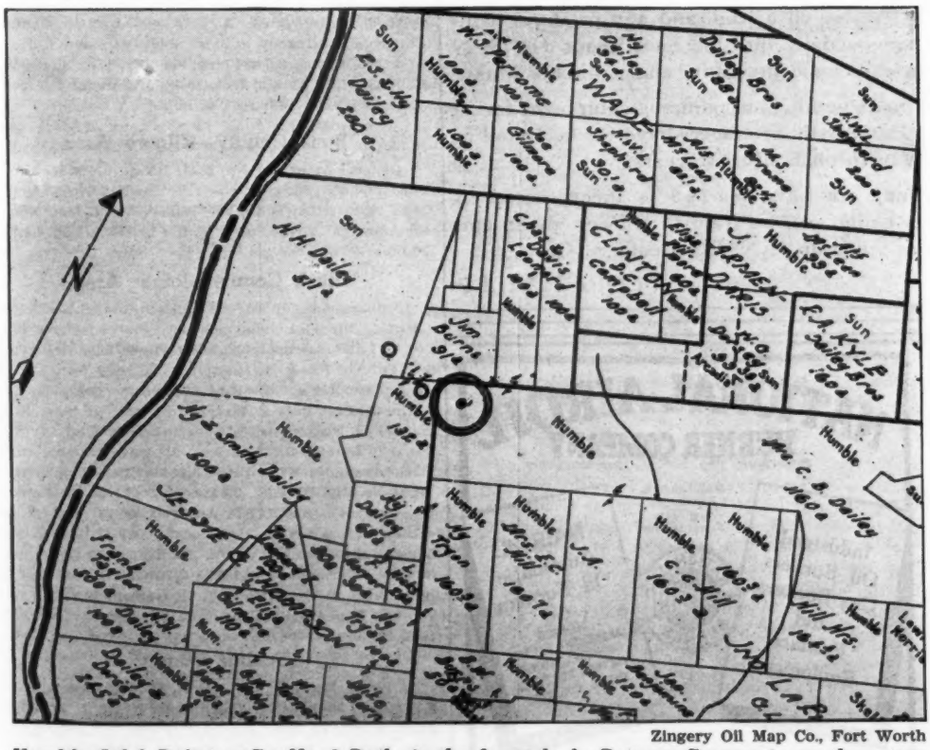
Three more major companies entered the play for deep production in Archer County last week as Humble, Gulf, and Phillips all purchased wildcat acreage. Humble Oil & Refining Co. purchased from Fain-McGaha Oil Co. one-half interest in the Fain-McGaha 5,000-acre wildcat block in the H.&T.C. Survey in the northeastern part of the county. Gulf Oil Corp. acquired 2,000 acres in scattered leases southeast of Mankins and in the territory east of the old Sunshine State pool. Phillips Petroleum Co. entered the play when it paid $69,000 cash to the L. F. Wilson Estate for 143 acres of semiwildcat territory on the south and west of the Panther discovery well.

K.M.A. Field Developments

In the K.M.A. field proper, two wildcat tests on the west side of the pool held most of the interest at the close of the week. D. H. Bolin No. 1 Waggoner, section 21, Block 7, H.&T.C. Survey, about 1½ miles north of the Geier Brothers and Jackson No. 1 Ancell dry hole on the southwestern end of the field, topped saturated sand at 4,040 feet and was coring below that depth at the close of the week. About 2 miles southwest of this test, Boller & Griffin No. 1 Collins, in the northeast corner of C. Roberts Survey, Abstract 540, was rigging up spudder to drill plug from casing set at 3,860 feet. The well cored saturated sand from 3,860 feet to 3,880 feet.

Wilbarger County

Another record producer was added to the deep Rock Crossing field of Wilbarger County by Phillips Petroleum Co. No. 4-V Waggoner Ranch flowed at the rate of 1,296 bbls. per day through ⅛-inch tubing choke on official gauge. Actual test was 162 bbls. in three hours. This is one of the largest completions in the field, corresponding closely in potential to the discovery well, No. 51 Waggoner. Production is coming from a two-sand section in the lower Canyon series of the Pennsylvanian, total depth 3,050 feet. The first pay is about 12 feet deep, and the second about the same, although no well situated favorably structurally has ever drilled the entire lower pay. The oil tests 40 degrees in gravity. This is the fifteenth producer in the Rock Crossing field, where the Humble and Phillips companies are most active operators. The field lies in the northwestern trend of the deep lower Strawn pay in the Chalk Hill, Panther and K.M.A. fields. Some efforts have been made to correlate or identify the Rock Crossing deep pays with the Strawn, but later studies have established it as the Canyon.


N
Sun
M. H. Dailey
Humble
Jim Burns
Clinton
Wade
Dailey Bros
Sun
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Humble

1,100 bbls. W. H. Peckham No. 1 N. H. Martin, 3,755-3,819 feet, 850 bbls. Pois & Schulz No. 7 Ed Foster J, 1,254-63 feet, 190 bbls.; No. 8 Ed Foster J, 893-97 feet, 90 bbls.; No. 1 Ed Foster K, 1,285 feet, dry. D. W. Powers and others No. 1 D. E. Hooks, 3,810-81 feet, 675 bbls. Reno Oil Co. No. 7-A M. A. Eads, 1,973 feet, dry. Sieboldt Drilling Co. No. 2 Munger, 3,775-3,895 feet, 1,510 bbls.

Young County

L. T. Burns No. 1 J. C. Bloodworth, 956-81 feet, 25 bbls.; No. 3 M. Foehr A, 1,002 feet, dry. Cabde Oil Co. No. 41 L. A. Snider, 571-75 feet, 10 bbls. Christie Brothers No. 1 J. A. Brown, 3,761-63 feet, 75 bbls. W. F. Collins No. 2 E. R. Smith, 558-82 feet, 5 bbls. W. D. Eastland and others No. 2 A. R. Manning, 3,050 feet, dry. W. E. Hickey and others No. 1 W. B. Bailey, 915 feet, dry. T. D. Humphrey No. 2 W. J. Dodd, 3,822-3,925 feet, 2,250 bbls. Wise & Jackson No. 18 F. M. Cullers, 539-92 feet, 8 bbls. Wooten & Wilson No. 1 Sue Cantwell, 653 feet, dry.

EAST AND EAST CENTRAL TEXAS

DALLAS, Tex., Apr. 18.—The giant East Texas field passed another milestone in its development last week as the 25,000th well was completed in the field. At the close of the week there was a total of 24,931 producing wells in the field, 150 rigs up or drilling and 45 wells completed during the week for an aggregate initial production of 2,229 bbls. per hour.

Northwestern Houston County centered most of the attention in East Central Texas last week as two new locations were made in the new producing area. Latest gauges last week on the discovery well, Humble Oil & Refining Co. and others No. 1 Dailey, in the Juan de la Reivere Survey, 14 miles northwest of Grapeland, revealed an increase over the previous week in gas-oil ratio. Through chokes ranging from 1/64 to $\frac{1}{4}$ inch, the well was accredited last week with making 81 bbls. of 36-gravity oil in 21 hours. With tubing pressures of 2,000 pounds and casing pressures of 2,300 pounds the well's gas-oil ratio of approximately 8,800-1 is comparatively high when considered with the average 5,000-1 ratio in the Long Lake field of Anderson County which is producing from similar strata. Humble Oil & Refining Co. staked No. 1 Jim Burns, in the Juan de la Reivere Survey, as a south offset to the discovery well and Sun Oil Co. staked No. 1 H. H. Dailey, in the G. Thompson Survey, as a west offset to the new Humble location.

Deep Tests

Lower Marine Trinity exploration in East Texas was slowed down considerably as the deepest test ever drilled in East Texas was prepared for abandonment and another was hindered by a fishing job. Stanolind Oil & Gas Co. will definitely plug and abandon No. 1 Tenny Norris, in the K. Thrasher Survey of Limestone County, after unsuccessfully attempting to make a producer from the Woodbine sand last week. The test was originally drilled to a total depth of 9,951½ feet.

One mile southwest of Longview in the M. Mann Survey of Gregg County, Humble Oil & Refining Co. and Gulf Oil Corp. No. 1 E. Robertson is fishing for lost electrical coring instrument dropped while running a Schlumberger survey to 9,603 feet last week. American Liberty Oil Co. and Tom Hunter No. 1 J. H. Fields, in the J. H. Carter Survey, 1 mile north of Kelsey in Upshur County was drilling below 8,367 feet in red sandy shale.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gauges)

Anderson County

In the Long Lake field, F. H. E. Oil Co. No. 3-A J. H. Morrow, 5,340-54 feet, 35 bbls. Tide Water Oil Co. No. 2 M. J. Reagan, 5,212-78 feet, 55,000,000 feet of gas.

Fannin County

Joiner-Owens No. 1 Dr. Grey, dry and abandoned at 2,340 feet.

Franklin County

In the Talco field, Humble Oil & Refining Co. No. 56 A. P. King, 4,228-4,318 feet, 243 bbls.

Henderson County

In the Cayuga field, Cayuga Oil & Gas Co. No. 6 A. G. Williams, 4,064-72 feet, 159 bbls.

Navarro County

G. W. Gibson No. 2 J. H. Edgar, dry and abandoned at 394 feet.

Titus County

Lee Umbernhorn No. 1 Sykes, dry and abandoned at 3,888 feet.

EAST TEXAS FIELD COMPLETIONS

(One-hour gauges)

Gregg County—Longview Area

Deep Rock and Murphy No. 14 Pritchard, 3,504-38 feet, 80 bbls. Humble Oil & Refining Co. No. 20 Killingsworth, 3,607-61 feet, 84 bbls. J. Long Drilling Co. No. 21-A W. W. Owens, 3,574-99 feet, 51 bbls. C. Pettitt No. 8 M. Finn, 3,602-46 feet, 120 bbls. Sun Oil Co. No. 42 J. M. Haynes, 3,567-3,658 feet, 31 bbls. Superior No. 8-B Pritchard, 3,530-52 feet, 64 bbls.

Gregg County—Kilgore Area

Atlantic Refining Co. No. 19-A M. Andrews, 3,620-86 feet, 84 bbls. B. F. Carroll No. 1 Evans, 3,540-61 feet, 5 bbls. Hastings & Dodson No. 5 Boatwright, 3,534-41 feet, 14 bbls. Island Oil No. 7 R. G., 3,601-05 feet, 66 bbls. Jones-Doss Oil Co. No. 11 E. Hagler, 3,572-73 feet, 50 bbls. Roger Lacey No. 5-A fee, 3,536-44 feet, 38 bbls. T. W. Lee No. 6-C J. R. Carter, 3,589-91 feet, 32 bbls. Potter Brothers-Cohen No. 3 Colored Baptist Church, 3,520-40 feet, 30 bbls. Tom Potter No. 2 J. E. Mitchell, 3,553-70 feet, 45 bbls. A. V. Riley No. 3 Presbyterian Church, 3,459-72 feet, 10 bbls. Shell Petroleum Corp. No. 11 J. A. Knowles, 3,646-47 feet, 66 bbls. L. L. Sugar No. 4 L. P. Griffin, 3,527-30 feet, 80 bbls. Sun Oil Co. No. 20 J. Rollins, 3,576-3,638 feet, 62 bbls.

Rusk County—Kilgore Area

General American No. 2 M. Brock, 3,636-37 feet, 60 bbls. Ryall & Sampson No. 2 S. Brock, 3,646-47 feet, 63 bbls. Selby & Lewis No. 7 D. Wills, 3,505-07 feet, 56 bbls. Stanolind Oil & Gas Co. No. 8 R. Christian, 3,667-68 feet, 20 bbls.

Rusk County—Joiner Area

Ambassador Oil Co. No. 4 Hamilton, 3,749-58 feet, 60 bbls.; No. 14 London School, 3,752-67 feet, 60 bbls.; No. 15 London School, 3,757-68 feet, 60 bbls. Delta Drilling Co. No. 7-A J. H. Henson, 3,565-3,600 feet, 23 bbls. H. G. Despot No. 5 Deason, 3,656-98 feet, 40 bbls. East Shore Oil Co. No. 12 B. Fox, 3,678-83 feet, 70 bbls. R. W. Fair No. 6 Deason, 3,603-50 feet, 15 bbls. Gulf Oil Corp. No. 1-B I. Holt, 3,738-45 feet, 25 bbls. Humble Oil & Refining Co. No. 8 Leon Hill, 3,704-06 feet, 75 bbls. H. L. Hunt No. 21 C. Young, 3,648-65 feet, 75 bbls. Magnolia Petroleum Co. No. 7 C. D. Ashby, 3,604-71 feet, 13 bbls. Ohio Oil Co. No. 87 O. H. Grisson, 3,629-55 feet, 48 bbls. Vaughn Production Co. No. 10 Reagan, 3,733-44 feet, 30 bbls. Ward Oil No. 43 E. S. Thrash, 3,741-80 feet, 47 bbls. I. M. William No. 5 I. H. Goforth, 3,776-78 feet, 40 bbls. Zepher Oil Co. No. 1-C J. R. Glover, 3,540-3,650 feet, 21 bbls.

Upshur County

Atlantic Refining Co. No. 21 H. W. Moyers, 3,592-3,742 feet, 86 bbls. W. L. Pilkens No. 6 J. B. Webb, 3,639-42 feet, 65 bbls.; No. 16 T. Wells, 3,714-15 feet, 35 bbls. Red Iron Drilling Co. No. 4 B. F. Phillips, 3,645-48 feet, 10 bbls. Sabinas Oil Corp. No. 15-C T. M. Collins, 3,676-82 feet, 60 bbls. Shell Petroleum Corp. No. 24 C. C. Landers, 3,647-3,724 feet, 60 bbls.

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Michigan Field Report

By
O. C. PRESSPRICH

Expect New Record Year in Production; Work Increases

SAGINAW, Mich., Apr. 18.—Forecasts of a 25,000,000 bbl. production total for Michigan oil fields this year are being made by oil men here, based on a first quarter total of 4,709,251 bbls., greater by more than 1,500,000 bbls. than the first quarter total in 1937, a year which set a new record for the state's fields at close to 17,000,000 bbls.

The 25,000,000-bbl. forecast for the year is given support by the discovery of new fields, such as that in Edenville Township, Midland County, and those in Door and Monterey townships of Allegan County.

Indication of an increase in drilling in all Michigan oil fields was apparent last week, with spring road conditions reported improving enough to permit transportation facilities to resume on a near-normal basis. Two new focal points of interest claimed the attention of operators, one a wildcat venture in Isabella County's Premont Township (13n-5w), and the other a gas test which more or less confirms a new field in Clare County's Grant Township (17n-4w).

While these fields were currently the hot spots of the industry, operators cautiously watched progress in Midland County's Edenville field, where an active test one location west and two north of Chapman's discovery was expected to establish further boundary markers.

Allegan County, which a week ago shifted attention to southwestern Michigan, with several favorable completions, failed to record a new well the past week, while Buckeye Township, of Gladwin County, had four completions, and its southern neighbor, Bentley Township, where considerable steady development is under way, showed three tests completed and ready for acid.

Lease men flocked to Isabella County's Premont Township last week and a flurry of transactions marked the completion of Bell & Marks No. 1 Fox Sisters, SE SW SE section 5-13n-5w, a wildcat which rated as a 100-barrel producer while awaiting acid. The test was looked upon as a possible forerunner of a field 12 miles southwest of Mount Pleasant.

Another interesting development of the week was the gas at James A. McKay No. 1 Joslin, NW NW NW section 35-17n-4w, Clare County, within the city limits of Clare. The well was capped and the rig moved two locations east, where a well will be spudded. The test gauged 5,000,000 cubic feet, only inches in the Michigan stray at 1,303 feet.

The Joslin is the first confirmation of the Clare County gas field tapped in Grant Township by Gulf Refining Co. discovery, which gauged 15,000,000 cubic feet. The Gulf discovery is one mile west of the Joslin well. It struck an oil trace six inches in the Michigan Stray sand and attempts to deepen the hole were abandoned. Gas from the well will go to the Gas Corporation of Michigan for Clare and Mount Pleasant consumption.

Occupying the spotlight for several weeks after Chapman Oil Co. discovery in Midland County's Edenville Township the Edenville field appeared almost as much a question mark today as the day the discovery was spudded in. At Garfield Petroleum Co. No. 2 Higgins & Gransden, SW SW SE section 21, a producer was indicated after a show of oil. Early last week the Garfield test had indications of being another failure for the Edenville pool, but late in the week drillers tapped a pay streak which had filled the hole with oil more than 2,500 feet. The depth reported Friday was 3,821 feet, somewhat lower than Dundee structures tested in Edenville. Operators planned to acidize in the hope of obtaining a commercial producer. The Garfield test is one location west and two north of Chapman's discovery. So far the record of the Edenville field includes favorable producers at the Chapman discovery, and two Mammoth Producing & Refining Corp. offsets, one to the west and the other north. Neither of the Mammoth wells was a larger producer than the discovery, and the north offset was said to be much smaller. On the other side of the picture is the failure at Smith Petroleum Co. test, three locations north of the discovery, and a Sun Oil Co. wildcat dry test, one and one-half miles south of the discovery, plus the Garfield question mark, off in a northwesterly direction Operators point now toward eastward testing of the field, as indicated by tests under way.

Significance also was attached to a producer estimated between 600 and 700 barrels daily in the Clayton field, Arenac County. Swanson Consolidated Oil Co. and Rowmor Corp. No. 3 Shepherd, SW NW SW section 4-20n-4e, opened with an initial of 750 bbls. and under curb due to lack of storage, was estimated later more than 600 bbls. The test is the second largest ever brought in in the Clayton field, where average wells are less than 200 bbls. and was expected to stimulate drilling activity in Arenac.

Gladwin County

Three completions and a dry hole which will block development in the southwest part of the north (Wicklund) pool, summarizes activity of the week in Buckeye, Michigan's most prolific pool. The dry hole was Daily Crude Oil Co. No. 5 Jacab, SW SW SE section 10-18n-1w, which indicates a northwesterly development trend, already apparent in the sector, while blocking further extension of the field to the southwest, extending into section 15. Further west of the Daily location, but lying to the north, Sun Oil Co. No. 5 Strohkirch, NE SE NE section 9-18n-1w, developed an acidized production of 100 bbls. daily. Operators were reluctant to push much further westward in Buckeye's north pool in the face of gradually dwindling production. American Drilling Co. No. 7 Soldan, SE SW SE section 12-18n-1w, reported a 200-bbl. producer after acid, to complete the north pool completion for the week. In the south (Oard) pool one completion was recorded. Bell & Marks No. 2 Schember, NW NW NW section 26-18n-1w, developed production of 250 bbls. daily after acid.

Steady development continued in Bentley Township, southeast neighbor of Buckeye. Each week completions are being added to the field with several tests nearing pay stratum. Seven producers have been added in the past two weeks. Gordon Oil Co. No. E-1 State, NW NW NW section 20-17n-2e, an acidized well, gauged 125 bbls. daily. Two other tests logged holes filled with oil and scheduled for acid treatment. They were Mammoth Producing & Refining Corp. No. 2 Lake, SW SW SE section 20-17n-2e, and Pyramid Oil Co. No. 1 Lake, SW SW SE section 20.

Tuscola County

Testing of an oil showing was under way late in the week at Brehm Oil Co. No. 1 Elmer Sharp, section 30, Akron Township. The wildcat reported 200 feet of fluid in the hole, most of it believed to be oil. The Dundee limestone was topped at 2,580 feet, and the oil appeared at 2,840 feet. Indications for a commercial producer even on pump were not rated highly by operators. Several other tests have been made in Tuscola County without success.

Brine Pollution

Four of six cases brought in the Midland County circuit court against as many oil companies operating in Midland County fields by Vern and Gladys Barden, representing 27 land owners along Salt River, involving pollution of the stream and damage to farmlands by brine waste from the wells, have been settled out of court at a figure reported to be $6,000. The settlement is understood to be conditioned on the stipulation of the oil companies that they will cease disposing of brine wastes in such a manner that they can reach Salt River. The defendants in the four cases settled are: Mammoth Producing & Refining Corp., Nollen Oil & Gas Co., Whittmer Co., and Brehm-Hollman Oil Corp.

Drilling Permits

Exploration of Allegan County's several promising oil areas appears due to maintain a fast pace throughout the spring, probably outdistancing the new central Michigan field in Edenville Township, Midland County, Conservation department reports for the week disclose the issuance of six drilling licenses for Allegan territory as against two for Edenville. The six Allegan permits are divided four and two between Monterey and Dorr townships, with none in the list for the older and better established Salem Township field.

One of the Edenville permits is for section 27, the discovery section, the other for section 19, three miles to the west. Three permits for proved territory in Buckeye Township, Gladwin County, and one wildcat location for each Clare, Ingham and Ottawa counties complete the week's list.

N. Y.-Penn. Gas Fields

COUDERSPORT, Pa., Apr. 18.—There were no completions in the New York-Pennsylvania deep sand gas fields during the past week but the addition of four new locations demonstrated that drilling in the current year will at least keep pace with that of the past few years.

New locations reported are: G. L. Cabot, Inc., one on the Whitney-Duke farm and another on the West Bingham Grange property, both in Bingham Township, Potter County, Pennsylvania. North Branch Co. is building the rig on the C. D. Ackley farm, Clymer Township, Tioga County, Pennsylvania. G. L. Cabot, Inc., is moving in on the Coral Cook farm, Woodhull Township, Steuben County, New York.

New York Operations

Status of current operations in the busy Woodhull field of Steuben County follows: G. L. Cabot, Inc., drilling at 2,695 feet in the C. Groves No. 2 farm and at 2,510 feet on the Neva Husted farm; Sylvania Corp., drilling at 2,010 feet on the H. Hand No. 2 farm; New York State Natural Gas Co., drilling at 3,025 feet on the Park Estate farm; New Penn Development Corp., drilling at 3,052 feet on the M. K. Husted farm, and Clancy and others, shut down on the R. Towsley farm.

New York State Natural Gas Co.'s wildcat test on the C. D. Carr farm, West Union Township, Steuben County, drilled through the Tully at 4,453-4,503 feet during the past week and is now at 5,827 feet. Wittmer and others are drilling at 2,710 feet on the George Caffrey farm, Greenwood Township, Steuben County.

Pennsylvania Operations

In Potter County, New Penn Development Corp. spudded in its wildcat on the James Hill farm, West Branch Township, and is still shut down at 5,700 feet on the Haupt farm, same township; Hanley & Bird are drilling at 690 feet on the Flora Rooks farm, and New York State Natural Gas Co., at 212 feet on the J. D. Morley farm in Bingham Township.

The New York State Natural Gas Co.'s test on the W. A. Simmons farm in Brookfield Township, Tioga County, is now down to 4,276 feet and the company is building the rig for a test on the L. Dickinson farm in Gaines Township, this county.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Apr. 16. — Pipe line deliveries from the Turner Valley field to the Calgary refineries in March totaled 406,644 bbls., bringing the total for the first three months of 1938 to 1,164,238 bbls. This new high for Turner Valley production was achieved under 42 per cent proration. The figures do not include production of the Mercury-Miracle group, Model Oils or National Petroleum Corp., whose output is handled elsewhere.

Government Testing Potentials

Official tests by the petroleum and natural gas division of the Alberta lands and mines department to determine potentials of Turner Valley crude producers started on April 8 with a group of 13 wells in the northern section of west flank crude area. Tests of a second group of 11 wells started on April 10, and a third group of five wells on April 12. Wells are run at their full proration quota for 10 days after which they run wide open for 24 hours, the potential being 66⅔ per cent of the eleventh day's recorded output.

On the west flank of North Turner Valley, Royalite Oil Co. No. 29 Turner Basin, LSD 7, section 27-20-3w5, finished 645 feet in the lime at 6,920 feet, looks like a major producer. The lime throughout was very tight and natural production was around 144 bbls. a day. When the lower lime was acidized a potential of 487 bbls. developed. A second acid treatment in the upper lime developed flush production at the rate of 1,440 bbls. a day, with abundance of gas pressure. Settled production is approximately 800 bbls. a day of 50-gravity crude. Location is about 12 miles northwest of the nearest crude producer on the southwest flank, and a mile north of Model Oils No. 1 crude producer. Royalite No. 29 is believed quite close to the naphtha area, and its completion as a major crude producer opens a large new potential crude area.

West Flank Producers

On the west flank of South Turner Valley, Sunset Oils No. 1, LSD 10, section 20-18-2w5, in March averaged 750 bbls. a day under 42 per cent proration. Production is 34 to 34.9-gravity crude. In the same area, Prairie Royalties No. 1, LSD 16, section 17-18-2w5 prorated at 626 bbls., has been reacidized. Monarch Royalties No. 1 and Firestone Petroleums No. 1 have also been given second acid treatment.

In section 29-18-2w5, Sunburst Oil Co. No. 1, N half LSD 1, finished at 6,735 feet, has been placed on the separator and is making close to 600 bbls. a day. Davies Petroleums No. 1, LSD 2, finished in the lime at 7,375 feet with indications of a good producer is adjusting tubing, after some difficulty with bridging in the upper lime. It will be acidized before making a definite test of potential.

In section 28-18-2w5, Richland Royalties No. 2, LSD 5, finished 540 feet in the lime at 6,950 feet, has been flowing by heads and is adjusting tubing for steady production.

In section 21-18-2w5, Brown Oil Corp. No. 4, LSD 4, finished 468 feet in the lime at 6,721 feet, was cleared of 3,500 feet of fluid by gas lift and then swabbed. It blew in to production under heavy pressure and looks like a big producer.

In section 20-18-2w5, Spy Hill Royalties No. 1, LSD 16, finished in the lime at 7,058 feet, is testing production.

Tests in the Lime

In section 9-18-2w5, National Petroleum Corp. No. 2, LSD 14, got the Madison limestone at 7,081 feet and cemented casing at 7,104 feet. This is the greatest depth at which the Madison was ever encountered in Turner Valley, being 60 feet deeper than in Sunset Oils No. 1, which has a potential of 1,721 bbls. Location is the farthest south at which the lime has yet been proven and a little farther west than the westernmost crude producers. Considerable oil saturation was encountered in the top 21 feet of lime. Completion of a producer here will extend the proven area nearly a mile south of Brown Oil Corp. No. 1, at present the southernmost producer.

In section 32-18-2w5, West Turner Petroleums No. 1, LSD 2, is below 7,117 feet after getting the Madison limestone at 6,832 feet. It has passed through the first porous zone and will be completed this month.

West Flank Drilling

In section 5-19-2w5, West Central Turner Valley, Vulcan-Brown Petroleums No. 1, LSD 10, was drilling below 5,858 feet. Mercury Royalties No. 1, LSD 8, same section, is below 4,520 feet.

In section 6-19-2w5, East Crest Oil Co. No. 6, LSD 8, is below 520 feet.

In section 32-18-2w5, Royalite Oil Co. No. 30, LSD 11, is below 6,400 feet and logging closely with Commoil No. 1, the largest producer in the field. Davies Petroleums No. 4, LSD 10, has cellar dug and derrick timbers on the ground. West Turner Petroleums No. 2, LSD 7, is below 3,600 feet. West Turner No. 3, LSD 3, is spudding.

In section 29-18-2w5. Commoil No. 2, LSD 10, offsetting No. 1 producer to the south, is spudding. Globe Royalties No. 1, LSD 7, is in the upper Blairmore formation below 5,720 feet after getting the grit beds at 5,465 feet. Royalite Oil Co. No. 31, LSD 6, is below 3,153 feet after cementing 9⅝-inch casing at 2,859 feet. Model-Spooner-Reward No. 2, S half LSD 1, is in the crooked-hole sand below 6,315 feet and nearing the upper Dalhousie formation.

In section 21-18-2w5, Barsac Royalties No. 1, LSD 12, is below 5,304 feet.

In section 20-18-2w5, United Brown

(Continued on Page 114)

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Summary of Operations, All Fields, March

SUMMARY OF OPERATIONS

Wells Completed

	Comp.	Prod.	Dry	Gas
Eastern fields	361	2,550	27	60
Lima	0	0	0	0
Central Ohio	54	285	15	30
Indiana	8	0	3	5
Western Ky.	31	433	15	1
Eastern Ky.	19	238	0	12
Michigan	57	9,534	20	4
Illinois	66	16,663	18	0
Kansas	166	61,384	51	5
Oklahoma	144	18,925	48	12
N. Central Texas	276	88,212	95	6
West Texas	224	158,821	26	1
Texas Panhandle	55	21,085	2	10
East Texas	200	10,418	4	0
E. Central Texas	27	3,031	8	4
East Texas Bord.	20	5,890	4	0
Gulf Coast Texas	143	47,366	31	6
Southwest Texas	241	23,296	73	6
Arkansas	19	11,980	2	0
North Louisiana	53	18,395	12	7
Gulf Coast La.	45	12,367	13	1
Mississippi	2	0	2	0
Montana	7	380	2	2
Wyoming	17	7,802	7	3
New Mexico	55	21,876	8	4
Total Mar.	2,290	540,931	486	179
Total Feb.	1,929	402,858	383	174
Difference	361	138,073	103	5

Rigs and Wells Drilling

	Rigs	Dig.	Ttl.
Eastern fields	57	295	352
Lima	1	7	8
Central Ohio	36	90	126
Indiana	6	25	31
Western Kentucky	4	40	44
Eastern Kentucky	6	29	35
Michigan	30	128	158
Illinois	17	133	150
Kansas	39	232	271
Oklahoma	45	314	359
N. Central Texas	97	340	437
West Texas	136	378	514
Texas Panhandle	28	114	142
East Texas	56	101	157
E. Central Texas	5	42	47
East Texas Border	7	23	30
Gulf Coast Texas	23	128	151
Southwest Texas	71	217	288
Arkansas	19	36	55
North Louisiana	28	73	101
Gulf Coast La.	12	101	113
Mississippi	5	4	9
Georgia	0	1	1
Alabama	2	0	2
Florida	2	0	2
Montana	4	48	52
Wyoming	9	69	78
Colorado	1	31	32
Utah	1	7	8
New Mexico	9	163	172
Nebraska	0	5	5
Total Mar.	756	3,174	3,930
Total Feb.	727	3,007	3,734
Difference	29	167	196

KANSAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Barber	1	0	1	0	0	5
Barton	24	7,278	7	0	4	20
Butler	6	180	2	0	2	9
Chase	0	0	0	0	0	1
Chautauqua	2	9	0	0	0	3
Clark	1	0	1	0	0	0
Cowley	9	2,231	3	0	1	8
Dickinson	0	0	0	0	1	0
Elk	0	0	0	0	0	1
Ellis	18	17,833	3	0	5	21
Ellsworth	4	834	1	0	0	3
Finney	0	0	0	0	0	1
Graham	0	0	0	0	0	1
Grant	0	0	0	0	0	1
Greenwood	4	75	1	0	1	6
Harper	0	0	0	0	0	1
Harvey	3	847	2	0	0	1
Jackson	0	0	0	0	0	1
Jewell	0	0	0	0	0	1
Kingman	1	0	0	1	0	0
Lane	0	0	0	0	0	1
Marion	1	0	1	0	0	1
McPherson	6	1,340	1	0	3	8
Meade	0	0	0	0	0	2
Ness	0	0	0	0	1	5
Pawnee	0	0	0	0	0	1
Pratt	1	0	1	0	0	0
Reno	5	1,437	2	0	3	10
Rice	20	5,277	6	1	4	17
Rooks	2	0	2	0	0	4
Rush	0	0	0	0	0	1
Russell	29	18,716	3	0	5	43
Sedgwick	3	0	3	0	2	5
Stafford	15	5,197	8	0	3	24
Stevens	3	0	0	3	1	3
Sumner	5	55	3	0	0	6
Trego	0	0	0	0	0	3
Woodson	3	75	0	0	3	14
Ttl. Mar.	166	61,384	51	5	39	232
Ttl. Feb.	127	65,065	31	4	45	263
Difference	39	3,681	20	1	6	31

OKLAHOMA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Atoka	1	0	1	0	0	2
Beckham	0	0	0	0	1	2
Bryan	1	0	1	0	0	0
Caddo	9	757	2	2	2	10
Carter	8	431	1	0	5	14
Choctaw	1	0	1	0	0	1
Cleveland	2	35	1	0	0	3
Coal	0	0	0	0	0	1
Comanche	0	0	0	0	0	6
Cotton	1	0	1	0	0	0
Creek	11	506	2	0	3	30
Garfield	1	0	0	1	0	4
Garvin	1	12	0	0	3	4
Grady	1	25	0	0	1	2
Grant	1	0	1	0	0	1
Greer	0	0	0	0	0	3
Hughes	0	0	0	0	1	9
Jefferson	2	18	1	0	0	4
Johnston	0	0	0	0	0	2
Kay	0	0	0	0	1	4
Kiowa	1	0	1	0	0	2
Lincoln	4	265	1	0	2	10
Logan	3	65	2	0	0	3
Love	0	0	0	0	0	1
Marshall	0	0	0	0	0	1
Murray	0	0	0	0	0	1
Muskogee	2	0	0	2	1	6
Noble	2	1,359	0	0	1	2
Okfuskee	4	135	1	0	1	6
Oklahoma	7	3,053	1	2	4	17
Okmulgee	6	25	3	1	4	29
Osage	13	317	4	1	0	19
Pawnee	0	0	0	0	1	1
Payne	5	4,409	1	0	0	6
Pontotoc	15	3,285	7	1	3	28
Pottawatomie	9	1,181	4	0	6	21
Seminole	21	2,987	6	1	2	36
Stephens	8	50	2	1	1	6
Texas	0	0	0	0	0	2
Tillman	3	0	3	0	0	2
Tulsa	1	10	0	0	1	9
Washita	0	0	0	0	0	1
Wagoner	0	0	0	0	1	3
Ttl. Mar.	144	18,925	48	12	45	314
Ttl. Feb.	129	18,657	36	12	48	301
Difference	15	268	12	0	3	13

CENTRAL AND NORTH TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Archer	18	3,291	11	0	6	14
Baylor	0	0	0	0	0	1
Brown	5	199	2	0	1	11
Callahan	4	896	3	0	0	9
Clay	13	1,511	4	0	5	8
Coleman	4	0	2	2	1	1
Comanche	1	20	0	0	0	1
Cooke	22	1,903	2	0	4	16
Denton	1	0	1	0	0	4
Eastland	4	1,141	3	0	1	5
Foard	0	0	0	0	1	0
Grayson	0	0	0	0	0	3
Haskell	1	0	1	0	1	1
Jack	19	3,062	8	1	4	20
Johnson	0	0	0	0	0	1
Montague	12	520	4	0	0	8
Palo Pinto	6	20	5	0	0	3
Parker	0	0	0	0	1	4
Shackelford	14	157	7	1	2	15
Stephens	0	0	0	0	0	6
Throckmorton	3	0	3	0	1	4
Wichita	113	73,572	23	0	57	156
Wilbarger	5	410	1	0	1	12
Wise	0	0	0	0	0	2
Young	31	1,510	15	2	11	35
Ttl. Mar.	276	88,212	95	6	97	340
Ttl. Feb.	179	39,373	68	2	96	312
Difference	97	48,839	27	4	1	28

EAST TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Anderson	5	90	0	3	3	5
Angelina	2	10	1	0	0	4
Bowie	0	0	0	0	0	1
Cherokee	2	0	2	0	0	1
Dallas	0	0	0	0	0	2
Delta	0	0	0	0	0	1
Falls	0	0	0	0	0	1
Fannin	0	0	0	0	0	1
Franklin	5	767	1	0	0	3
Gregg	112	6,276	1	0	31	44
Henderson	5	771	2	0	2	5
Hill	1	0	0	1	0	0
Houston	0	0	0	0	0	4
Leon	1	0	0	1	0	1
Limestone	0	0	0	0	0	2
McLennan	0	0	0	0	0	2
Madison	0	0	0	0	0	1
Navarro	2	0	2	0	0	2
Rockwall	0	0	0	0	0	1
Rusk	65	3,329	0	0	15	41
Smith	0	0	0	0	5	5
Titus	5	1,393	0	0	0	3
Trinity	0	0	0	0	0	1
Upshur	21	813	1	0	5	10
Van Zandt	1	0	1	0	0	2
Ttl. Mar.	227	13,449	12	4	61	143
Ttl. Feb.	215	13,035	14	2	46	143
Difference	12	414	2	2	15	0

TEXAS PANHANDLE

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Armstrong	0	0	0	0	0	1
Carson	8	1,838	0	3	0	8
Childress	0	0	0	0	1	0
Cottle	0	0	0	0	0	1
Collingsworth	1	0	1	0	0	2
Deaf Smith	0	0	0	0	0	1
Dickens	0	0	0	0	0	1
Floyd	0	0	0	0	0	1
Gray	19	9,139	0	1	12	33
Hall	0	0	0	0	0	1
Hansford	1	0	0	1	0	0
Hartley	0	0	0	0	0	1
Hutchinson	19	10,094	0	0	13	51
Lamb	1	0	1	0	0	0
Moore	2	0	0	2	0	5
Ochiltree	0	0	0	0	0	1
Potter	1	0	0	1	0	1
Roberts	0	0	0	0	0	2
Sherman	0	0	0	0	0	1
Wheeler	3	14	0	2	2	3
Ttl. Mar.	55	21,085	2	10	28	114
Ttl. Feb.	53	16,972	3	9	37	107
Difference	2	4,113	1	1	9	7

WEST TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Andrews	5	3,754	0	0	7	12
Bailey	0	0	0	0	0	1
Brewster	0	0	0	0	0	3
Cochran	2	123	0	0	0	5
Coke	0	0	0	0	0	2
Crane	16	18,744	1	0	4	17
Crockett	3	838	1	0	4	3
Culberson	1	0	1	0	0	2
Dawson	0	0	0	0	0	1
Ector	56	64,955	0	0	35	94
Edwards	0	0	0	0	0	3
El Paso	0	0	0	0	0	1
Fisher	4	1,219	0	0	0	5
Gaines	5	2,028	1	0	2	7
Garza	0	0	0	0	0	2
Glasscock	0	0	0	0	1	0
Hockley	2	1,346	0	0	0	3
Howard	13	10,636	1	0	10	23
Hudspeth	0	0	0	0	0	2
Irion	1	0	1	0	0	0
Jeff Davis	0	0	0	0	0	1
Jones	19	4,707	8	0	6	29
Kent	0	0	0	0	3	0
Kimble	0	0	0	0	1	0
Loving	1	325	0	0	3	1
Lynn	0	0	0	0	0	1
Mitchell	0	0	0	0	0	2
Menard	0	0	0	0	0	1
Nolan	0	0	0	0	0	1
Pecos	8	704	4	0	6	30
Presido	0	0	0	0	0	1
Reeves	2	0	2	0	0	3
Runnels	0	0	0	0	1	2
Schleicher	1	0	1	0	0	2
Scurry	0	0	1	0	0	3
Sterling	0	0	0	0	0	1
Stonewall	0	0	0	0	0	2
Sutton	0	0	0	0	1	0
Taylor	0	0	0	0	0	3
Terrell	1	0	1	0	0	1
Terry	1	0	1	0	1	0
Tom Green	0	0	0	0	1	3
Upton	14	5,816	1	0	20	25
Val Verde	0	0	0	0	5	0
Ward	30	16,676	1	1	7	34
Winkler	24	16,442	0	0	10	23
Yoakum	15	10,508	1	0	8	23
Ttl. Mar.	224	158,821	26	1	136	378
Ttl. Feb.	192	120,585	37	3	115	333
Difference	32	38,236	11	2	21	45

SOUTHWEST TEXAS

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Agua Dulce	2	36	0	1	1	3
Alfred	1	112	0	0	1	3
Alta Mesa	1	217	0	0	0	1
Alta Verde	0	0	0	0	0	1
Alworth	0	0	0	0	0	1
Benavides	21	2,746	1	1	8	7
Branyon	3	104	1	0	1	4
Bruni	1	0	1	0	0	1
Buchannan	0	0	0	0	0	2
Burdette Wells	4	257	0	0	1	2
Byersville	0	0	0	0	0	1
Calliham	2	35	0	0	1	0
Chacon Lake	5	7	0	0	0	0
Charco-Redondo	0	0	0	0	0	1
Charmousa	1	60	0	0	1	0
Chittim	0	0	0	0	0	1
Clara Driscoll	0	0	0	0	1	0
Colorado	0	0	0	0	0	1
Cole	0	0	0	0	0	1
Colmena	1	16	0	0	0	1
Comitas	0	0	0	0	0	1
Dale	3	0	3	0	1	2
Darst Creek	2	106	0	0	3	2
Driscoll	1	1	0	0	0	1
Dunlap	0	0	0	0	1	3
Eagle Hill	0	0	0	0	0	1
E. Premont	0	0	0	0	0	1
E. Telferner	0	0	0	0	0	1
Escobas	1	10	0	0	0	2
E. White Point	1	0	1	0	0	3
Eckert	0	0	0	0	0	1
Ezzell	17	1,026	3	0	2	4
Flour Bluff	4	0	4	0	1	3
Gov. Wells	1	47	0	0	0	1
Heyser	10	1,436	0	0	3	8
Hoffman	5	317	0	0	2	2
Keeran	0	0	0	0	0	1
Killam	5	166	2	0	1	2
Kingsville	2	0	2	0	0	1
Labbe	1	0	1	0	0	2
Las Animas	0	0	0	0	0	1
Loma Alta	0	0	0	0	0	1
Luby	6	662	1	0	1	4
Lucas	0	0	0	0	0	1
Luling	8	333	1	0	4	5
Lundell	3	364	0	0	0	1
Macdona	1	3	0	0	1	1
McCampbell	3	523	0	0	2	5
McFaddin	3	304	0	0	1	3
Maetze	0	0	0	0	0	1
Mercedes	1	75	0	0	0	0
Mirando Valley	1	193	0	0	3	2
Normanna	0	0	0	0	0	1
N. Normanna	0	0	0	0	0	1
Nash Creek	0	0	0	0	0	1
Ohern	1	100	0	0	1	1
Oilton	20	2,745	3	0	3	8
Peters	0	0	0	0	0	1
Piedra Lumbre	4	285	0	0	0	1
Placedo	3	130	2	0	0	2
Plummer	0	0	0	0	0	1
Premont	1	40	0	0	1	2
Plymouth	1	192	0	0	0	2
Refugio	6	618	2	0	1	3
Rhodes	2	0	1	1	0	0
Richard King	1	10	0	0	1	0
Ricaby	0	0	0	0	0	1
Rockdale	3	33	0	0	0	1
Salt Flats	2	137	0	0	0	3
Samfordyce	2	30	0	1	1	2
San Domingo	1	0	0	1	0	0
Saxet	7	460	2	0	5	9
Seven Sisters	6	500	1	0	1	1
S. Burnell	2	0	1	1	0	1
S. Clara Driscoll	0	0	0	0	0	1
Somerset	0	0	0	0	0	2
Stratton	1	128	0	0	0	0
Sweden	1	19	0	0	0	0
Taft	2	264	0	0	1	1
Taylor	0	0	0	0	0	1
Tomoconnor	8	6,997	0	0	4	5
Von Ormy	0	0	0	0	0	1
W. Saxet	8	1,452	2	0	4	10
W. Tuleta	1	0	1	0	0	0
Misc.	37	0	37	0	7	56
Ttl. Mar.	241	23,296	73	6	71	217
Ttl. Feb.	199	21,000	57	7	48	199
Difference	42	2,296	16	1	23	18

COASTAL LOUISIANA

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Abbeville	1	0	1	0	0	2
Anse La Butte	2	0	2	0	1	0
Bayou Blue	0	0	0	0	0	1
Bay St. Elaine	0	0	0	0	0	1
Bayou Cocotriz	1	970	0	0	0	2
Bayou Des Allemands	1	0	1	0	0	1
Big Lake	0	0	0	0	0	2
Black Bayou	1	132	0	0	0	1
Bosco	1	184	0	0	0	0
Caillou Island	0	0	0	0	0	1
Cameron Meadows	1	390	0	0	0	2
Creole	1	510	0	0	0	0
Charenton	6	1,389	1	0	0	3
Cheneyville	0	0	0	0	1	1
Choctaw	0	0	0	0	0	2
Darrow	1	705	0	0	0	2
Dog Lake	0	0	0	0	0	1
East Baton Rouge	1	465	0	0	1	0
Edgerly	1	0	1	0	0	0
Fausse Point	0	0	0	0	0	1
Four Isle	0	0	0	0	0	1
Gillis	1	0	0	1	0	0
Garden Island	1	550	0	0	0	1
Hackberry	2	174	0	0	0	9
Horseshoe Bayou	0	0	0	0	0	1
Jeanerette	0	0	0	0	1	1
Jennings	4	930	0	0	2	11
Lafitte	1	1,301	0	0	0	3
Lake Hermitage	1	5	0	0	0	0
Lake Long	0	0	0	0	0	1
Lake Pelto	1	946	0	0	0	1
Leesville	0	0	0	0	1	0
Lirette	0	0	0	0	0	2
N. Crowley	1	768	0	0	0	2
New Iberia	1	552	0	0	0	3
Port Barre	1	450	0	0	0	1
Potash	0	0	0	0	0	1
Quarantine Bay	0	0	0	0	0	1
Roanoke	2	336	1	0	0	2
S. Elton	0	0	0	0	0	1
Sorrento	0	0	0	0	0	1
Starks	0	0	0	0	1	0
Sulphur	3	300	2	0	0	3
Timballer Bay	0	0	0	0	0	1
Valentine	0	0	0	0	0	3
Venice	1	140	0	0	0	1
Villa Platte	2	918	0	0	0	5
Vinton	0	0	0	0	0	1
Welsh	1	0	1	0	0	1
White Castle	1	252	0	0	0	1
Woodlawn	0	0	0	0	0	1
Misc.	3	0	3	0	4	18
Ttl. Mar.	45	12,367	13	1	12	101
Ttl. Feb.	30	7,416	9	1	11	87
Difference	15	4,951	4	0	1	14

TEXAS GULF COAST

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Amelia	5	1,425	1	0	0	3
Anahuac	4	1,374	0	1	0	2
Bay City	1	207	0	0	0	3
Barbers Hill	1	453	0	0	0	3
Big Hill	0	0	0	0	0	1
Buckeye	1	75	0	0	0	0
Cedar Bayou	1	0	1	0	0	1
Cedar Point	0	0	0	0	0	2
Clinton	1	408	0	0	0	1
Cotton Lake	0	0	0	0	0	1
Cleveland	0	0	0	0	0	1
Damon Mound	1	0	1	0	0	1
Danbury	1	0	1	0	0	1
Dickinson	8	2,984	1	0	1	10
Eureka	1	616	0	0	1	1
Fairbanks	1	96	0	0	0	6

Fannett	1	0	1	0	0	0
Five Corners	1	267	0	0	0	1
Friendswood	14	7,703	0	0	0	6
Hankamer	2	393	0	0	0	1
Hardin	9	4,347	1	0	2	8
Hastings	24	12,965	0	0	7	10
High Island	0	0	0	0	0	2
Hitchcock	2	0	2	0	0	0
Hull	0	0	0	0	0	2
Labelle	0	0	0	0	0	1
Louise	0	0	0	0	0	1
Lockridge	3	833	0	0	0	2
Magnet	1	88	0	0	0	1
Manvel	3	1,408	0	0	0	2
Markham	0	0	0	0	0	1
McCrosky	1	80	0	0	0	0
Nome	3	1,198	1	0	0	2
North Cheek	1	0	1	0	0	1
North Edna	1	177	0	0	0	0
Old Ocean	2	431	0	0	0	2
Orchard	1	0	1	0	0	1
Orange	5	1,317	2	0	1	3
Palacios	1	72	0	0	0	2
Pickett Ridge	0	0	0	0	0	2
Pierce Jct.	0	0	0	0	0	2
Port Neches	1	0	1	0	0	0
Sandy Point	1	108	0	0	1	0
Silsbee	2	481	1	0	0	1
Seabreeze	2	726	0	1	1	1
Segno	2	816	0	0	0	3
South Call	2	0	2	0	0	0
Spindletop	0	0	0	0	0	3
Spurger	1	520	0	0	1	0
Thompson	2	527	0	0	0	2
Tomball	11	2,098	2	4	0	6
Turtle Bay	1	0	1	0	0	1
Van Vleck	2	883	0	0	1	0
W. Columbia	3	1,319	0	0	3	5
Withers	2	971	0	0	0	3
Misc.	10	0	10	0	4	15
Ttl. Mar.	143	47,366	31	6	23	128
Ttl. Feb.	76	27,297	17	0	24	121
Difference	67	20,069	14	6	1	7

EAST TEXAS BORDER

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Bowie	0	0	0	0	1	0
Cass-Rodessa	4	830	0	0	0	1
Cass-Other	2	0	2	0	0	0
Harrison	0	0	0	0	1	1
Marion-Rodessa	12	5,060	0	0	3	20
Panola	1	0	1	0	1	1
Shelby	1	0	1	0	1	0
Ttl. Mar.	20	5,890	4	0	7	23
Ttl. Feb.	9	3,900	1	0	11	27
Difference	11	1,990	3	0	4	4

NORTH LOUISIANA

Summary of Field Operations

Parish—	Comp.	Prod.	Dry	Gas*	Rgs.	Dlg.
Bienville	0	0	0	0	1	1
Bossier	2	1,020	0	0	1	3
Caddo-Rodessa	6	1,845	0	0	1	5
Caddo-Other	11	225	3	2	3	14
Catahoula	0	0	0	0	1	0
Claiborne	11	11,365	1	0	1	10
Concordia	1	0	1	0	0	0
De Soto	7	5	4	2	4	3
Franklin	0	0	0	0	1	0
La Salle	3	50	0	0	1	2
Lincoln	3	735	0	0	2	1
Morehouse	0	0	0	0	1	3
Natchitoches	0	0	0	0	1	0
Ouachita	1	0	1	0	2	1
Red River	0	0	0	0	2	0
Sabine	2	220	1	0	1	4
Tensas	0	0	0	0	0	1
Union	1	0	0	1	2	4
Webster	5	2,930	1	2	2	21
Winn	0	0	0	0	1	0
Ttl. Mar.	53	18,395	12	7	28	73
Ttl. Feb.	41	15,910	9	4	29	64
Difference	12	2,485	3	3	1	9

*Gas production: Caddo, 12,538,000 ft.; De Soto, 9,892,000 ft.; Union, 1,500,000 ft.; Webster, 9,000,000 ft.

ARKANSAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Bradley	0	0	0	0	1	0
Calhoun	0	0	0	0	1	0
Cleveland	1	0	1	0	0	1
Columbia	0	0	0	0	2	3
Critterdon	0	0	0	0	1	0
Desha	0	0	0	0	0	1
Hempstead	0	0	0	0	1	1
Lafayette	1	0	1	0	0	0
Lincoln	0	0	0	0	1	0
Little River	0	0	0	0	1	1
Miller-Rodessa	8	3,010	0	0	0	10
Nevada	0	0	0	0	2	0
Ouachita	0	0	0	0	1	1
Pulaska	0	0	0	0	0	1
Union	9	8,970	0	0	8	17
Ttl. Mar.	19	11,980	2	0	19	36
Ttl. Feb.	11	6,650	2	0	18	34
Difference	8	5,330	0	0	1	2

ALABAMA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Houston	0	0	0	0	1	0
Mobile	0	0	0	0	1	0
Ttl. Mar.	0	0	0	0	2	0
Ttl. Feb.	0	0	0	0	2	0
Difference	0	0	0	0	0	0

MISSISSIPPI

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Claiborne	0	0	0	0	2	0
George	0	0	0	0	0	1
Harrison	0	0	0	0	1	0
Hancock	0	0	0	0	1	0
Hinds	1	0	1	0	0	1
Lamar	0	0	0	0	0	1
Perry	1	0	1	0	0	0
Simpson	0	0	0	0	0	1
Yalobousha	0	0	0	0	1	0
Ttl. Mar.	2	0	2	0	5	4
Ttl. Feb.	1	0	1	0	5	6
Difference	1	0	1	0	0	2

FLORIDA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Lake	0	0	0	0	1	0
Nassau	0	0	0	0	1	0
Ttl. Mar.	0	0	0	0	2	0
Ttl. Feb.	0	0	0	0	1	1
Difference	0	0	0	0	1	1

GEORGIA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Pierce	0	0	0	0	0	1
Ttl. Mar.	0	0	0	0	0	1
Ttl. Feb.	0	0	0	0	0	0
Difference	0	0	0	0	0	1

ROCKY MOUNTAIN AREA

NEW MEXICO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Ttl.
Bernalillo	0	0	0	0	0	1
McKinley	0	0	0	0	0	5
San Juan	2	102	0	0	0	2
San Miguel	0	0	0	0	0	3
Socorro	0	0	0	0	0	1
Torrance	0	0	0	0	0	1
Valencia	0	0	0	0	0	3
Lea	47	21,313	6	4	8	100
Eddy	5	461	1	0	1	37
Curry	1	0	1	0	0	0
Chaves	0	0	0	0	0	3
De Baca	0	0	0	0	0	3
Dona Ana	0	0	0	0	0	1
Roosevelt	0	0	0	0	0	1
Otero	0	0	0	0	0	2
Ttl. Mar.	55	21,876	8	4	9	163
Ttl. Feb.	40	15,110	8	0	10	174
Difference	15	5,766	0	4	1	11

MONTANA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Big Horn	2	0	0	2	0	2
Carbon	0	0	0	0	0	6
Fergus	1	0	1	0	0	5
Glacier	1	0	1	0	3	5
Hill	0	0	0	0	0	1
Petroleum	0	0	0	0	0	2
Pondera	0	0	0	0	1	1
Toole	3	380	0	0	0	12
Yellowstone	0	0	0	0	0	3
Miscellaneous	0	0	0	0	0	11
Ttl. Mar.	7	380	2	2	4	48
Ttl. Feb.	3	70	1	0	2	48
Difference	4	310	1	2	2	0

WYOMING

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Albany	2	25	1	0	0	0
Big Horn	0	0	0	0	0	5
Carbon	2	1,680	0	1	3	4
Converse	4	0	4	0	0	8
Fremont	1	101	0	0	0	6
Hot Springs	0	0	0	0	0	6
Lincoln	1	0	0	1	0	3
Natrona	0	0	0	0	1	1
Niobrara	3	5,994	0	0	2	10
Park	0	0	0	0	0	4
Sweetwater	1	0	0	1	0	5
Uinta	0	0	0	0	0	3
Washakie	1	0	1	0	0	0
Weston	2	2	1	0	3	12
Miscellaneous	0	0	0	0	0	2
Ttl. Mar.	17	7,802	7	3	9	69
Ttl. Feb.	12	957	2	2	8	67
Difference	5	6,845	5	1	1	2

NEBRASKA

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Ttl. Mar.	0	0	0	0	0	5
Ttl. Feb.	1	0	1	0	0	5
Difference	1	0	1	0	0	0

COLORADO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Adams	0	0	0	0	0	2
Archuleta	0	0	0	0	0	5
Cheyenne	0	0	0	0	0	1
Huerfano	0	0	0	0	0	2
La Plata	0	0	0	0	0	2
Mesa	0	0	0	0	0	2
Moffat	0	0	0	0	0	1
Park	0	0	0	0	0	3
Rio Blanco	0	0	0	0	0	1
Routt	0	0	0	0	1	1
Miscellaneous	0	0	0	0	0	11
Ttl. Mar.	0	0	0	0	1	31
Ttl. Feb.	2	492	1	0	1	28
Difference	2	492	1	0	0	3

UTAH

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Ttl. Mar.	0	0	0	0	1	7
Ttl. Feb.	0	0	0	0	1	7
Difference	0	0	0	0	0	0

OHIO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Ashland	1	0	0	1	1	3
Ashtabula	2	0	0	2	0	0
Athens	6	10	1	4	1	0
Belmont	0	0	0	0	2	4
Coshocton	0	0	0	0	1	1
Cuyahoga	2	0	1	1	2	1
Fairfield	2	0	0	2	1	1
Gallia	0	0	0	0	0	1
Guernsey	6	0	1	5	1	1
Hocking	0	0	0	0	1	1
Holmes	1	0	1	0	0	1
Huron	2	0	0	2	0	3
Jackson	1	0	0	1	0	0
Knox	0	0	0	0	3	8
Lawrence	0	0	0	0	0	2
Licking	6	131	0	3	3	7
Lorain	1	0	1	0	2	5
Medina	2	0	2	0	0	1
Meigs	2	0	1	1	2	3
Monroe	3	90	2	0	0	8
Morgan	2	1	0	1	4	3
Muskingum	2	0	0	2	1	4
Noble	2	0	1	1	2	2
Perry	1	0	1	0	3	1
Ross	0	0	0	0	0	1
Stark	4	0	0	4	3	4
Summit	0	0	0	0	0	2
Trumbull	0	0	0	0	0	1
Tuscarawas	0	0	0	0	1	4
Washington	6	53	3	0	2	16
Wayne	0	0	0	0	0	1
Ttl. Mar.	54	285	15	30	36	90
Ttl. Feb.	63	337	14	41	49	67
Difference	9	52	1	11	13	23

ILLINOIS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Bond	1	0	1	0	0	2
Clark	0	0	0	0	0	1
Clay	1	324	0	0	1	1
Clinton	27	6,266	3	0	4	56
Coles	1	0	1	0	0	1
Cumberland	0	0	0	0	0	1
Edgar	0	0	0	0	0	1
Edwards	0	0	0	0	0	2
Effingham	0	0	0	0	0	3
Fayette	4	305	0	0	3	2
Franklin	0	0	0	0	0	1
Jackson	1	0	1	0	0	0
Jasper	0	0	0	0	0	1
Jefferson	4	591	1	0	1	6
Lawrence	0	0	0	0	0	1
Macon	0	0	0	0	0	1
Menard	0	0	0	0	0	1
Marion	2	180	0	0	1	14
Massac	0	0	0	0	0	1
Montgomery	0	0	0	0	0	1
Pope	0	0	0	0	0	1
Randolph	2	0	2	0	0	1
Richland	19	8,997	5	0	4	26
Saline	0	0	0	0	0	2
Shelby	0	0	0	0	0	1
Vermilion	0	0	0	0	0	1
Wabash	1	0	1	0	0	0
Washington	0	0	0	0	0	1
Wayne	3	0	3	0	2	3
White	0	0	0	0	1	0
Ttl. Mar.	66	16,663	18	0	17	133
Ttl. Feb.	44	17,274	11	0	44	81
Difference	22	611	7	0	27	51

MICHIGAN

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Adams	0	0	0	0	0	5
Bentley	3	283	0	0	2	8
Buckeye, N.	7	1,912	0	0	1	12
Buckeye, S.	4	1,741	0	0	1	9
Clayton	2	510	0	0	2	5
Dorr	1	200	0	0	2	2
Deerfield	0	0	0	0	0	1
Edenville	1	500	0	0	2	9
New Haven	0	0	0	0	1	0
Trowbridge	0	0	0	0	1	1
Salem	8	1,651	2	0	1	8
Secord	1	100	0	0	0	1
Sherman	4	1,780	1	0	1	1
W. Branch	2	556	0	0	2	8
Winfield	1	0	1	0	1	0
Monterey	0	0	0	0	1	0
Wise	1	0	1	0	0	1
Wisner	0	0	0	0	0	1
Wildcats	22	301	16	4	10	56
Ttl. Mar.	57	9,534	20	4	30	128
Ttl. Feb.	62	10,546	20	2	19	127
Difference	15	1,012	0	2	11	1

WESTERN KENTUCKY

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Breckinridge	1	0	0	1	0	4
Butler	1	25	0	0	0	3
Daviess	3	125	0	0	0	8
Grayson	0	0	0	0	0	1
Hancock	3	0	3	0	0	3
Henderson	1	4	0	0	0	1
Logan	1	0	1	0	0	0
McLean	4	155	2	0	0	9
Muhlenberg	1	0	1	0	0	1
Ohio	14	99	7	0	4	8
Todd	1	0	1	0	0	0
Webster	0	0	0	0	0	2
Wayne	1	25	0	0	0	0
Ttl. Mar.	31	433	15	1	4	40
Ttl. Feb.	25	370	13	0	0	41
Difference	6	63	2	1	4	1

EASTERN KENTUCKY

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Floyd	6	0	0	6	1	9
Martin	5	117	0	2	4	5
Pike	1	0	0	1	0	5
Johnson	2	0	0	2	0	1
Magoffin	1	6	0	0	0	0
Perry	1	0	0	1	0	0
Lawrence	0	0	0	0	0	1
Knott	0	0	0	0	1	0
Lee	3	115	0	0	0	5
Powell	0	0	0	0	0	3
Ttl. Mar.	19	238	0	12	6	29
Ttl. Feb.	32	294	3	15	4	31
Difference	13	56	3	3	2	2

INDIANA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Crawford	0	0	0	0	0	1
Daviess	0	0	0	0	2	2
Dearborn	1	0	0	1	0	0
De Kalb	0	0	0	0	0	1
Gibson	1	0	1	0	0	1
Hancock	0	0	0	0	0	1
Harrison	0	0	0	0	0	1
Huntington	0	0	0	0	0	1
Jay	0	0	0	0	0	1
Jennings	0	0	0	0	0	1
Knox	1	0	0	1	2	3
Lagrange	0	0	0	0	1	1
Park	0	0	0	0	0	1
Perry	1	0	1	0	0	3
Pike	1	0	1	0	0	2
Porter	0	0	0	0	0	1
Posey	0	0	0	0	0	3
Rush	1	0	0	1	0	0
Spencer	0	0	0	0	1	0
Sullivan	1	0	0	1	0	1
Vigo	1	0	0	1	0	0
Ttl. Mar.	8	0	3	5	6	25
Ttl. Feb.	16	76	7	5	2	25
Difference	8	76	4	0	4	0

EASTERN FIELDS

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.
Bradford	*173	2,208	0	0	7	63
Allegany	†61	36	0	0	5	35
N.Y.-Penna.	4	0	1	3	6	17
Middle District	‡15	13	0	0	5	17
Butler-Armstr'g.	4	3	2	0	2	10
SW Penna.	13	12	2	10	3	22
SE Ohio	29	192	9	8	7	34
W. Virginia	62	86	13	39	22	97
Total Mar.	361	2,550	27	60	57	295
Total Feb.	364	1,422	17	64	50	301
Difference	3	1,128	10	4	7	6

*Includes 51 water-intake wells. †Includes 25 water-intake wells. ‡Includes 5 pressure wells.

Drilling Contractors

(Continued from Page 83)

was bottomed in salt water sand at 6,560 feet, after logging slight showings of oil and gas from 6,480-6,500 feet. Another Edwards rotary is operating in the Dickinson field for the Mid-States Oil Co.

George Echols completed Sinclair Prairie Oil Co. No. 12 Bennett in the Heyser field and is moving the rig to another location for the same company. In the meantime he is drilling ahead on two wells for himself and is nearing the pay on another well in the Jefferson area of the Rodessa field. The latter is also being drilled for himself.

Rutherford Drilling Co. is starting a semiwildcat test for himself about 3,000 feet east of the Van Vleck field. It is located on the J. A. Birkner lease in the Bowman-Williams-Laws, Thaxton and Baster Survey. He has one rotary operating in the field proper for Skelly Oil Co., while in the West Saxet field he has one outfit operating for himself.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, county and location—	S. T. R.	Depth	Status—
Wilshire Oil, No. 1 Gaviota, Santa Barbara	35- 5-33	3,075	fish D.P.
Ohio Oil, No. 1 Morrison, Santa Maria, Santa Barbara	27-10-34	2,160	sd. sh. drlg.
Hancock-Bush, No. 2 Bradley, Santa Maria, S. Barb.	26-10-34	3,680	sd. sh. drlg.
Palm Oil, No. 1 Bill, Santa Maria, Santa Barbara	27-10-34	4,248	pump 650 b.d.
Bankline Oil, No. 1 Silva, Santa Maria, S. Barbara	7- 9-33	595	sd. sh. drlg.
Hanoli Oil, No. 1 Holser, Santa Maria, S. Barbara	27-10-34	3,994	sd. sh. drlg.
Cal. Lands, Inc., No. 4 Gallison, Santa Maria, S. Barb.	26-10-34	4,597	sd. sh. drlg.
Cal. Lands, Inc. No. 1 MacDonnell, S. Maria, S. Barb.	28-10-34	4,638	sd. sh. drlg.
Moore, E. H., No. 1-H Sugar, Santa Maria, S. Barbara	19-10-34	5,250	pump. 150 b.d.
Signal Oil, No. 1 Yelkin, Santa Maria, Santa Barbara	26-10-34	2,481	fish D.P.
Union Oil. No. 1 Stinson, Santa Maria, Santa Barbara	28-10-34	4,950	sd. sh. drlg.
Union Oil, No. 3 LeRoy, Santa Maria, Santa Barbara	24-10-35	2,697	sd. sh. drlg.
Union Oil, No. 2-1-0 Santa Maria, Santa Barbara	21-10-34	5,522	pump 150 b.d.
Union Oil, No. 1 Silva, Santa Maria, Santa Barbara	24-10-35	5,203	flow 120 b.d.
Union Oil, No. 3 Bradley, Santa Maria, Santa Barbara	25-10-34	1,764	sd. sh. drlg.
Valoco Oil, No. 1 Boyd, Santa Maria, Santa Barbara	28-10-34	2,010	sd. sh. drlg.
Wilson Oil, No. 1-B Santa Maria, Santa Barbara	26-10-34	4,950	sd. sh. drlg.
Sunshine Oil, No. 3-W Santa Maria, Santa Barbara	27-10-34	4,171	sd. sh. drlg.
Bay City Oil, No. 1-M Santa Maria, Santa Barbara	27-10-34	4,365	br. sh. drlg.
Standard Oil, No. 1 Cat Canyon, Santa Barbara	27- 9-33	5,529	redrlg. 5,290
United West. Oil, No. 1 Los Olivos, Santa Barbara	16- 7-30	2,890	br. sh. drlg.
Fisher, D., No. 1 Cuyama, Santa Barbara	28-11-28	1,296	idle
Carpinteria Oil, No. 1 Carpinteria, Santa Barbara	32- 4-25	2,192	br. sh. drlg.
Gauthier Oil, No. 1 Summerland, Santa Barbara	22- 4-26	1,465	idle
Rowe, W. G., No. 1 Johnson, Oxnard, Ventura	15- 1-22	4,115	redrlg. 3,570
Texas Co., No. 5 Yale, South Mountain, Ventura	13- 3-21	3,740	sd. sh. drlg.
Texas Co. No. 1 Edwards, Camarillo, Ventura	19- 2-21	6,111	fish D.P.
Merchants Pet., No. 1 Sespe, Ventura	1- 4-20	180	sd. sh. drlg.
Continental Oil No. 1 Elkins, Hopper Canyon, Ventura	23- 4-19	1,138	sd. sh. drlg.
C. C. M. Oil, No. 19 Hobson, Rincon, Ventura	17- 3-24	4,022	P.B. 3,905
C. C. M. Oil, No. 20 Hobson, Rincon, Ventura	8- 3-24	4,713	P.B. 4,657
C. C. M. Oil, No. 22 Hobson, Rincon, Ventura	17- 3-24	3,871	hd. sd. drlg.
Richfield Oil, No. 6-H Rincon, Ventura	17- 3-24	2,580	cmtd. 2,548
Tide Water A. O., No. 19 V.L.W., Ventura, Ventura	26- 3-23	8,260	hd. sd. drlg.
Tide Water A. O., No. 68 Lloyd, Ventura, Ventura	27- 3-23	4,093	sd. sh. drlg.
Tide Water A. O., No. 69 Lloyd, Ventura, Ventura	27- 3-23	7,179	flow 150 b.d.
Tide Water A. O., No. 76 Lloyd, Ventura, Ventura	27- 3-23	1,990	sd. sh. drlg.
Tide Water A. O., No. 127 Lloyd, Ventura, Ventura	27- 3-23	1,872	sd. sh. drlg.
Tide Water A. O., No. 135 Lloyd, Ventura, Ventura	27- 3-23	9,838	flow 1,523 b.d.
Tide Water A. O., No. 138 Lloyd, Ventura, Ventura	23- 3-23	9,877	O.S. drlg
Tide Water A. O., No. 18 Hartman, Ventura, Ventura	22- 3-23	10,885	sd. sh. drlg.
Tide Water A. O., No. 11 McGonigle, Ventura, Ventura	23- 3-23	3,570	sd. sh. drlg.
Shell Oil, No. 94 Taylor, Ventura Ave., Ventura	20- 3-23	7,392	sd. sh. drlg.
Shell Oil, No. 31 Edison, Ventura Ave., Ventura	20- 3-23	1,067	sd. sh. drlg.
Shell Oil, No. 37 Gosnell, Ventura Ave., Ventura	28- 3-23	4,921	sd. sh. drlg.
General Pet., No. 13 Notten, Ventura Ave., Ventura	28- 3-23	9,871	P.B. 9,451
Lloyd Corp., No. 1 Dabney-Lloyd, Vent. Ave., Ventura	24- 3-23	1,670	sd. sh. drlg.
Amerada Pet., No. 5 Beer, Devils Den, Kern	22-26-19	7,620	gr. sd. drlg.
H. L. F. Oil, No. 1 Devils Den, Kern	25-25-18	151	idle
Gibson Oil, No. 3 Alferitz, Devils Den, Kern Co.	14-25-18	180	sd. sh. drlg.
Par-Mer Oil, No. 1 McKittrick, Kern	6-31-22	3,050	sd. sh. drlg.
Standard Oil, No. 2 Randolph, Semi-Tropic, Kern	14-27-23	7,620	wet; abd.
Continental Oil, No. 2 KCL, Wasco, Kern	8-27-24	15,004	flow 2,000 b.d.
Chico-Martinez Oil, No. 1 Exeter, S. Belridge, Kern	1-29-20	1,050	pump 50 b.d.
Ohio Oil, No. 1 Ford, South Belridge, Kern	6-29-22	5,450	br. sh. drlg.
Texas Co. No. 2-23 Theta, Lost Hills, Kern	2-26-20	1,825	dry; abd.
Tide Water A. O., No. 10-B Williamson, Lost Hills, Kn.	11-26-20	1,327	cleaning out
Tide Water A. O., No. 1 Elliott, Lost Hills, Kern	11-26-20	1,531	dry; abd.
Argo Pet., No. 1 Farnsworth, Lost Hills, Kern	11-26-20	1,291	pump 30 b.d.
Shell Oil, No. 1 Voight, Belridge, Kern	32-27-20	4,100	dry; abd.
Belridge Oil, No. 27-5 North Belridge, Kern	27-27-20	4,168	br. sh. drlg.
Belridge Oil, No. 27-6 North Belridge, Kern	27-27-20	6,994	br. sh. drlg.
Belridge Oil, No. 35-26 North Belridge, Kern	35-27-20	5,750	cmtd. 5,667
Tide Water A. O., No. 1-21 North Belridge, Kern	21-27-20	8,640	flow 430 b.d.
Tide Water A. O., No. 3-21 North Belridge, Kern	21-27-20	3,671	br. sh. drlg.
Richfield Oil, No. 1-A North Belridge, Kern	22-27-20	8,538	flow 2,158 b.d.
Richfield Oil, No. 2 North Belridge, Kern	22-27-20	4,972	sd. sh. drlg.
Texas Co., No. 3 Martin, North Belridge, Kern	22-27-20	7,760	gr. sd. drlg.
Texas Co., No. 4 Martin, North Belridge, Kern	22-27-20	3,287	sd. sh. drlg.
General Pet., No. 1 St. Helens, Belridge, Kern	12-28-20	8,685	fish D.P.
Coast Expl., No. 1 Coffee, Round Mountain, Kern	6-28-29	1,979	rig to pump
Pan-May Oil, No. 1 Coffee, Round Mountain, Kern	31-27-29	462	hd. sd. drlg.
Cal-Western Oil, No. 11 Round Mountain, Kern	12-28-28	1,805	pump 130 b.d.
Kern River Oilfields, No. 25-1-C Kern Front, Kern	25-28-27	2,007	cleaning out
Rubenstein, A. B., No. 1 Lerdo, Kern	20-28-27	3,302	pump water
Spencer Pet., No. 4 Lerdo, Kern	10-28-27	2,104	O.S. drlg.
Helm & Smith, No. 2-A Kernco, Kern River, Kern	34-28-28	667	pump 20 b.d.
W. T. W. Pet., No. 1 Packard, Mount Poso, Kern	14-27-28	1,375	dry; abd.
W. T. W. Pet., No. 2 Packard, Mount Poso, Kern	14-27-28	1,259	gr. sd. drlg.
Carter, J. P., No. 2 S.P.L., Mount Poso, Kern	3-27-28	1,473	cleaning out
Shell Oil, No. 6 Mathews, Mount Poso, Kern	4-27-28	1,793	sd. sh. drlg.
Bargol Oil, No. 2 Claflin, Mount Poso, Kern	10-27-27	2,210	idle
Framac Oil, No. 3 Brown, Mount Poso, Kern	22-27-27	1,351	cmtd. 1,340
Reynolds Oil, No. 1 Premier, Mount Poso, Kern	30-27-27	2,500	gr. sd. drlg.
Crestmont Oil, No. 1 Glide, Mount Poso, Kern	19-26-28	2,030	dry; abd.
Western Gulf Oil, No. 34 KCL, Fruitvale, Kern	14-29-27	3,033	O.S. drlg.
Wilbur, V. R., No. 1 Fruitvale, Kern	22-29-27	4,181	P.B. 3,960
Pacific Oil & Gas, No. 2 Guisti, Fruitvale, Kern	14-29-27	2,997	cleaning out
Wood Callahan Oil, No. 21-2 Edison, Kern	21-30-29	3,675	P.B. 3,145
Union Oil, No. 1 Berry, Arvin, Kern	15-31-29	6,550	sd. sh. drlg.
Petrex, Inc., No. 1 Arvin, Kern	32-31-30	3,648	cleaning out
Superior Oil, No. 2 Wagner, Rio Bravo, Kern	35-28-25	11,340	br. sh. drlg.
Superior Oil, No. 3 Wagner, Rio Bravo, Kern	35-28-25	9,180	sd. sh. drlg.
Superior Oil, No. 1 Anderson, Rio Bravo, Kern	35-28-25	1,996	sd. sh. drlg.
Superior Oil, No. 1 Ruhl, Rio Bravo, Kern	1-29-25	11,450	sd. sh. drlg.
Union Oil, No. 2-34 KCL, Rio Bravo, Kern	34-28-25	11,204	fish tubing
Getty Oil, No. 1 Ramsey, Rio Bravo, Kern	35-28-25	10,498	sd. sh. drlg.
General Pet., No. 1 Wagoner, Rio Bravo, Kern	35-28-25	10,161	sd. sh. drlg.
General Pet., No. 2 Wagoner, Rio Bravo, Kern	35-28-25	1,795	sd. sh. drlg.
Standard Oil, No. 18-1 KCL, Una, Kern	29-28-26	7,174	sd. sh. drlg.
Dilmar Oil, No. 1 Quinn, Jasmin, Kern	15-25-27	2,956	P.B. 2,875
Amerada Pet., No. 1 Core Hole, Jasmin, Kern	2-25-27	1,961	sd. sh. drlg.
Standard Oil, No. 11-2 KCL, Greeley, Kern	20-29-26	11,069	gr. sh. drlg.
Standard Oil, No. 11-13 KCL, Greeley, Kern	20-29-26	7,780	P.B. 7,760
Standard Oil, No. 11-14 KCL, Greeley, Kern	18-29-26	7,790	sd. sh. drlg.
Standard Oil, No. 1 Ross, Greeley, Kern	20-29-26	7,295	sd. sh. drlg.
Shell Oil, No. 76-1-B KCL, Greeley, Kern	16-29-26	7,534	dry; abd.
Continental Oil, No. 1-E KCL, Stevens, Kern	17-30-26	3,897	sd. sh. drlg.
Shell Oil, No. 41-29-A KCL, Ten Section, Kern	29-30-26	7,960	sd. sh. drlg.
Shell Oil, No. 34-30-A KCL, Ten Section, Kern	30-30-26	6,270	sd. sh. drlg.
Shell Oil, No. 25-30-B KCL, Ten Section, Kern	30-30-26	8,175	O.S. drlg.
Shell Oil, No. 21-32-B KCL, Ten Section, Kern	32-30-26	1,120	sd. sh. drlg.
Shell Oil, No. 2-13-A KCL, Canal, Kern	13-30-25	8,212	O.S. drlg.
Shell Oil, No. 81-14-A KCL, Canal, Kern	14-30-25	6,695	sd. sh. drlg.
Ohio Oil, No. 5-E KCL, Canal, Kern	14-30-25	8,176	flow 2,350 b.d.
Ohio Oil, No. 8-A KCL, Buena Vista Lake, Kern	32-31-26	9,671	sd. sh. drlg.
Richfield Oil, No. 1 M. C., Midway-Sunset, Kern	24-31-22	2,560	pump 10 b.d.
Quality Oil, No. 1 W. P., Midway-Sunset, Kern	27-32-23	1,835	pump 112 b.d.
Berry Oil, No. 22 Midway-Sunset, Kern	28-12-24	1,140	pump 45 b.d.
Victor Oil, No. 14 Midway-Sunset, Kern	35-32-23	2,170	pump 50 b.d.
National Oil, No. 17 Midway-Sunset, Kern	35-32-23	2,424	O.S. drlg.
Whittier, M. H., No. 16 Hondo, Midway-Sunset, Kern	15-31-22	948	sd. sh. drlg.
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern	33-11-23	8,099	br. sh. drlg.
Texas Co., No. 31 Midway-Sunset, Kern	32-32-24	2,794	sd. sh. drlg.
Abbott, F. E., No. 12 Lewis, Sunset, Kern	20-11-23	3,271	sd. sh. drlg.
Universal Cons'd., No. 1 Tejon, Kern	33-11-19	4,553	rig to pump
Shell Oil, No. 4-26 KCL, San Emidio, Kern	26-11-22	8,285	sd. sh. drlg.
Richfield Oil, No. 1 KCL, Wheeler Ridge, Kern	28-11-20	1,965	gr. sd. drlg.
Pure Oil, No. 1 SPL, Cantua, Fresno	31-18-18	10,862	fish D.P.
Gauthier, J., No. 2 Hubbard, Panoche Creek, Fresno	12-14-11	635	fish D.P.
Pet. Sec., No. 2 Gatchell, Jacalitos, Fresno	18-20-16	6,878	cmtd. 6,700
Dauphin Dev., No. 1 Alcalde, Fresno	30-21-14	3,778	cleaning out
Shell Oil, No. 35-1 Coalinga, Fresno	36-19-14	1,385	P.B. 960
K. N. D. A., No. 67-20-J Kettleman North, Fresno	20-21-17	10,546	O.S. drlg.
K. N. D. A., No. 72-4-P Kettleman North, Fresno	4-22-17	8,450	hd. sd. drlg.
K. N. D. A., No. 6-8-Q Kettleman North, Kings	6-22-18	7,370	gr. sd. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St. sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting for cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

K. N. D. A., No. 38-8-Q Kettleman North, Kings	8-22-18	6,797	br. sh. drlg.
K. N. D. A., No. 27-16-Q Kettleman North, Kings	16-22-18	5,275	sd. sh. drlg.
K. N. D. A., No. 47-18-Q Kettleman North, Kings	18-22-18	7,590	gr. sd. drlg.
K. N. D. A., No. 43-20-Q Kettleman North, Kings	20-22-18	5,784	br. sh. drlg.
Standard Oil, No. 46-13-H Kettleman North, Fresno	13-21-16	9,597	cleaning out
Standard Oil, No. 27-21-J Kettleman North, Fresno	21-21-17	10,861	O.S. drlg.
Standard Oil, No. 58-33-J Kettleman North, Fresno	33-21-17	7,298	gr. sd. drlg.
Standard Oil, No. 2-11-P Kettleman North, Kings	11-22-17	7,940	gr. sd. drlg.
Standard Oil, No. 78-1-P Kettleman North, Kings	1-22-17	4,461	sd. sh. drlg.
Standard Oil, No. 87-1-P Kettleman North, Kings	1-22-17	7,572	gr. sd. drlg.
Standard Oil, No. 21-13-P Kettleman North, Kings	13-22-17	7,248	redrlg. 5,050
Standard Oil, No. 41-7-Q Kettleman North, Kings	7-22-18	8,200	gr. sd. drlg.
Standard Oil, No. 74-7-Q Kettleman North, Kings	7-22-18	5,544	sd. sh. drlg.
Standard Oil, No. 85-7-Q Kettleman North, Kings	7-22-18	6,960	br. sh. drlg.
Bandini Pet., No. 5 Whepley, Kettleman No., Fresno	35-21-17	9,515	redrlg. 9,240
Magnet Oil, No. 1 Glaze, Pixley, Tulare	15-22-26	3,281	P.B. 2,802
Wilshire Oil, No. 1 Cowell, Half Moon Bay, San Mateo	20- 6- 5	8,030	P.B. 2,525
Standard Oil, No. 1 Anderson, Rio Vista, Solano	1- 3- 2	1,996	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, county and location—	S. T. R.	Depth	Status—
Basin Oil Co., No. 1 Potrero, Los Angeles	34- 2-14	2,140	sd. sh. drlg.
Ohio Oil, No. 12 Gough, El Segundo, Los Angeles	7- 3-14	2,398	sd. sh. drlg.
Termo Co., No. 2 El Segundo, Los Angeles	12- 3-15	7,400	cleaning out
D. & B. Oil, No. 1 Lomita, Los Angeles	25- 4-14	1,181	sd. sh. drlg.
Patton, C. B., No. 1 Meacham, Torrance, Los Angeles	15- 4-14	4,977	pump 170 b.d.
Patton, C. B., No. 2 Nell, Torrance, Los Angeles	14- 4-14	5,016	rig to pump
McCaslin, W. E., No. 1 Whitney, Torrance, L. Angeles	14- 4-14	3,723	rigging up
Torrance Oil, No. 1 Grubb, Torrance, Los Angeles	14- 4-14	4,896	sd. sh. drlg.
Sol Oil, No. 1 Torrance, Torrance, Los Angeles	23- 4-14	3,825	redrlg. 3,198
Andrews & Mitchell, No. 5 Kirk, Torrance, L. Ang.	23- 4-14	5,005	sd. sh. drlg.
Anderson, N. H., No. 2 Torrance, Los Angeles	14- 4-14	5,051	P.B. 4,964
McDonald & Burns, No. 3 Moore, Torrance, Los Ang.	23- 4-14	4,880	sd. sh. drlg.
Emerald Oil, No. 1 fee, Torrance, Los Angeles	23- 4-14	5,120	cleaning out
Camp, C. W., No. 12 Torrance, Los Angeles	23- 4-14	4,286	sd. sh. drlg.
Doyle Pet., No. 1 Bond, Torrance, Los Angeles	23- 4-14	5,098	pump. 110 b.d.
Doyle Pet., No. 2 Neill, Torrance, Los Angeles	14- 4-14	4,999	pump 210 b.d.
Doyle Pet., No. 3-A Getty, Torrance, Los Angeles	14- 4-14	2,567	sd. sh. drlg.
Elyod Oil, No. 1 Post, Torrance, Los Angeles	14- 4-14	3,998	sd. sh. drlg.
Peso Oil, No. 1 Marcoux, Torrance, Los Angeles	23- 4-14	5,014	sd. sh. drlg.
Kelly, F. C., No. 1 Huyck, Torrance, Los Angeles	14- 4-14	4,970	sd. sh. drlg.
Marel Oil, No. 1 Torrance, Los Angeles	14- 4-14	4,996	sd. sh. drlg.
Woolner Oil, No. 1 Torrance, Los Angeles	14- 4-14	4,861	sd. sh. drlg.
Krause & Baker, No. 2 Gladys, Torrance, Los Angeles	14- 4-14	3,795	rigged up
Peters Royalty, No. 1 Torrance, Los Angeles	14- 4-14	3,788	redrlg. 3,181
Pilgrim Oil, No. 1 P. & O., Torrance, Los Angeles	14- 4-14	3,800	redrlg. 3,596
Sierra Dev., No. 2 Weiller, Torrance, Los Angeles	23- 4-14	4,898	sd. sh. drlg.
Texas Co., No. 5 Redondo, Torrance, Los Angeles	15- 4-14	3,628	rig to pump
Texas Co., No. 3 Wilson, Torrance, Los Angeles	15- 4-14	4,966	pump 160 b.d.
Wilson, R. K., No. 1 Cook, Torrance, Los Angeles	14- 4-14	3,770	redrlg. 2,974
South. Cal. Drlg., No. 1 Hough, Torrance, L. Angeles	14- 4-14	3,780	will deepen
Standard Oil, No. 1 Martin, Torrance, Los Angeles	15- 4-14	3,994	sd. sh. drlg.
Superior Oil, No. 6 Torrance, Los Angeles	16- 4-14	3,730	redrlg. 1,997
Imperial Gypsum, No. 1 DeWitt, Torrance, Los Ang.	14- 4-14	3,750	redrlg. 2,982
Imperial Gypsum, No. 2 Getty, Torrance, L. Angeles	14- 4-14	3,785	idle
Lakeside Oil, No. 2 Cook, Torrance, Los Angeles	14- 4-14	4,998	cleaning out
Coast Line Oil, No. 1 McBride, Torrance, L. Angeles	14- 4-14	5,006	pump 145 b.d.
C. C. M. O., No. 14 Torrance, Los Angeles	14- 4-14	5,020	hd. sh. drlg.
C. C. M. O., No. 23 Torrance, Los Angeles	14- 4-14	4,280	sd. sh. drlg.
Fisher, N., No. 1 Washburn, Torrance, Los Angeles	23- 4-14	5,147	pump water
Berkin Oil, No. 1 Star, Torrance, Los Angeles	16- 4-14	3,758	cleaning out
Shell Oil, No. 94 Reyes, Dominguez, Los Angeles	33- 3-13	6,870	sd. sh. drlg.
Union Oil, No. 58 Callender, Dominguez, Los Angeles	33- 3-13	7,594	redrlg. 4,650
Union Oil, No. 59 Callender, Dominguez, Los Angeles	33- 3-13	6,826	sd. sh. drlg.
Union Oil, No. 60 Callender, Dominguez, Los Angeles	33- 3-13	7,089	sd. sh. drlg.
Barnsdall Oil, No. 20 O'Dea, Rosecrans, Los Angeles	18- 3-13	7,835	sd. sh. drlg.
Union Oil, No. 19 Rosecrans, Rosecrans, Los Angeles	18- 3-13	3,398	sd. sh. drlg.
Howard Oil, No. 1 Gordon, Rosecrans, Los Angeles	18- 3-13	6,596	cleaning out
H. B. Oil, No. 1 Stephens, Rosecrans, Los Angeles	18- 3-13	6,033	repair rig
Barnsdall Oil, No. 3 S.F., Newhall, Los Angeles	26- 4-17	3,040	sd. sh. drlg.
West Coast Dev., No. 2 Broughton, Newhall, L. Ang.	27- 4-16	2,080	sd. sh. drlg.
General Pet., No. 33 Ford, Wilmington, Los Angeles	4- 5-13	2,925	flow 340 b.d.
General Pet., No. 38 Ford, Wilmington, Los Angeles	4- 5-13	2,375	sd. sh. drlg.
General Pet., No. 39 Ford, Wilmington, Los Angeles	4- 5-13	4,101	idle
General Pet., No. 3 Harbor, Wilmington, Los Angeles	2- 5-13	2,940	sd. sh. drlg.
General Pet., No. 10 Harbor, Wilmington, L. Angeles	2- 5-13	3,900	O.S. drlg.
General Pet., No. 11 Harbor, Wilmington, L. Angeles	2- 5-13	3,075	O.S. drlg.
General Pet., No. 14 Harbor, Wilmington, L. Angeles	2- 5-13	1,293	sd. sh. drlg.
General Pet., No. 15 Harbor, Wilmington, L. Angeles	2- 5-13	3,889	flow 1,532 b.d.
General Pet., No. 6-S.P., Wilmington, Los Angeles	2- 5-13	2,805	O.S. drlg.
Bankline Oil, No. 6-U.P., Wilmington, Los Angeles	2- 5-13	3,901	O.S. drlg.
Baker Oil, No. 1 Wilmington, Los Angeles	35- 4-13	3,078	cmtd. 3,077
Caleb Pet., No. 1 F. H., Wilmington, Los Angeles	32- 4-13	2,990	sd. sh. drlg.
Dunlap Oil, No. 11 Wilmington, Los Angeles	2- 5-13	3,860	flow 4,250 b.d.
Hogan Pet., No. 1 Graham, Wilmington, Los Angeles	2- 5-13	4,199	sd. sh. drlg.
Hancock Oil, No. 14-A Wilmington, Los Angeles	3- 5-13	2,692	O.S. drlg.
Hancock Oil, No. 9-B Wilmington, Los Angeles	2- 5-13	4,084	O.S. drlg.
Hancock Oil, No. 11-B Wilmington, Los Angeles	2- 5-13	2,280	sd. sh. drlg.
Hancock Oil, No. 8-F Wilmington, Los Angeles	2- 5-13	3,640	O.S. drlg.
Kreiger Oil, No. 2 K.W., Wilmington, Los Angeles	32- 4-13	3,670	flow 500 b.d.
Michelin, Jas., No. 1 Com., Wilmington, Los Angeles	33- 4-13	2,900	O.S. drlg.
Richfield Oil, No. 1-G Wilmington, Los Angeles	2- 5-13	6,078	P.B. 2,970
Richfield Oil, No. 2-P.D., Wilmington, Los Angeles	2- 5-13	1,722	sd. sh. drlg.
Richfield Oil, No. 3-P.D., Wilmington, Los Angeles	2- 5-13	2,197	sd. sh. drlg.
Richfield Oil, No. 6-P.D., Wilmington, Los Angeles	2- 5-13	1,789	sd. sh. drlg.
Richfield Oil, No. 26-P.D., Wilmington, Los Angeles	2- 5-13	2,088	sd. sh. drlg.
Richfield Oil, No. 3-R.O., Wilmington, Los Angeles	2- 5-13	1,398	sd. sh. drlg.
Richfield Oil, No. 1-P.G., Wilmington, Los Angeles	2- 5-13	2,910	sd. sh. drlg.
Richfield Oil, No. 4-P.G., Wilmington, Los Angeles	2- 5-13	3,650	O.S. drlg.
Richfield Oil, No. 1-W.E., Wilmington, Los Angeles	2- 5-13	3,470	pump 120 b.d.
Royalty Service, No. 6 Nelson, Wilmington, L. Ang.	33- 4-13	5,660	flow 200 b.d.
Selegna Prod., No. 11 Wilmington, Los Angeles	33- 4-13	2,995	O.S. drlg.
Silvergate Oil, No. 1 Wilmington, Los Angeles	32- 4-13	2,570	sd. sh. drlg.
Superior Oil, No. 2 Seaside, Wilmington, Los Angeles	2- 5-13	2,512	sd. sh. drlg.
Superior Oil, No. 4-B Seaside, Wilmington, L. Angeles	4- 5-13	2,515	sd. sh. drlg.
Superior Oil, No. 4-C Seaside, Wilmington, L. Angeles	4- 5-13	2,908	flow 560 b.d.
Superior Oil, No. 17 B.B., Wilmington, Los Angeles	2- 5-13	2,679	sd. sh. drlg.
Superior Oil, No. 1 Leonard, Wilmington, L. Angeles	2- 5-13	2,942	flow 580 b.d.
Texas Co., No. 3 Ref., Wilmington, Los Angeles	34- 4-13	3,445	sd. sh. drlg.
Termo Co., No. 1-D Wilmington, Los Angeles	3- 5-13	3,905	flow 5,189 b.d.
Termo Co., No. 4-D Wilmington, Los Angeles	3- 5-13	2,196	sd. sh. drlg.
Union Pacific R.R., No. 72 Wilmington, L. Angeles	34- 4-13	3,984	flow 8,868 b.d.
Union Pacific R.R., No. 73 Wilmington, L. Angeles	34- 4-13	2,087	sd. sh. drlg.
Union Pacific R.R., No. 81 Wilmington, L. Angeles	4- 5-13	2,775	sd. sh. drlg.
Union Pacific R.R., No. 83 Wilmington, L. Angeles	3- 5-13	3,933	O.S. drlg.
Union Pacific R.R., No. 3-E Wilmington, L. Angeles	3- 5-13	3,476	O.S. drlg.
Union Pacific R.R., No. 4-E Wilmington, L. Angeles	3- 5-13	2,444	sd. sh. drlg.
Union Pacific R.R., No. 5-E Wilmington, L. Angeles	3- 5-13	2,468	sd. sh. drlg.
Pioneer Petrol, No. 1 Irvine, Wilmington, L. Angeles	26- 4-13	3,397	sd. sh. drlg.
Johnston Drlg., No. 1 Pico, Montebello, L. Angeles	5- 2-11	4,871	sd. sh. drlg.
St. Helens Pet., No. 24-M Montebello, Los Angeles	2- 2-12	5,781	sd. sh. drlg.
St. Helens Pet., No. 25-M Montebello, Los Angeles	2- 2-12	5,480	sd. sh. drlg.
St. Helens Pet., No. 26-M Montebello, Los Angeles	2- 2-12	4,140	sd. sh. drlg.
Union Oil, No. 1 Paul Howard, Montebello, L. Ang.	2- 2-12	5,794	sd. sh. drlg.
Union Oil, No. 1 Wilcox, Montebello, Los Angeles	2- 2-12	4,839	sd. sh. drlg.
Standard Oil, No. 1 Harvey, Montebello, Los Angeles	2- 2-12	3,685	cleaning out
McVicar & Rood, No. 1 Manz, Montebello, L. Angeles	2- 2-12	4,293	sd. sh. drlg.
Brookline Oil, No. 1 Drake, Montebello, L. Angeles	2- 2-12	1,998	sd. sh. drlg.
Brit. American Oil, No. 1 Pico, Los Angeles	12- 2-12	3,990	will deepen
Monte Cristo Oil, No. 1 Monterey Park, Los Angeles	27- 1-12	4,240	will deepen
Fullerton Oil, No. 5 Whittier, Los Angeles	25- 2-11	2,097	sd. sh. drlg.
Colorado Oil, No. 19 Whittier, Los Angeles	22- 2-11	1,130	sd. sh. drlg.
Hillidon Oil, No. 1 Poole, North Long Beach, L. Ang.	13- 4-13	3,496	sd. sh. drlg.
Hillidon Oil, No. 2 Poole, North Long Beach, L. Ang.	13- 4-13	412	sd. sh. drlg.
Signal Oil, No. 1 P.E., North Long Beach, L. Angeles	13- 4-13	2,976	redrlg. 1,946
Abrams, John, No. 1 Flood Control, Los Angeles	13- 4-13	4,644	pump 140 b.d.
Caminol Co., No. 1-8 Dominguez, Flood Control, L. A.	14- 4-13	3,694	sd. sh. drlg.
Marvell Oil, No. 1 Long Beach, Los Angeles	19- 4-12	4,148	idle
Dunlap Oil, No. 13 Long Beach, Los Angeles	30- 4-12	3,294	sd. sh. drlg.
Shell Oil, No. 1 Goddard, Long Beach, Los Angeles	19- 4-12	3,520	pump 145 b.d.
Shell Oil, No. 44 Alamitos, Long Beach, Los Angeles	28- 4-12	4,198	sd. sh. drlg.
Yunker, C. F., No. 2 Barbara, Long Beach, L. Angeles	24- 4-13	3,665	pump 120 b.d.
Standard Oil, No. 13-A Huntington, Los Angeles	36- 5-11	4,670	reaming
W. P. R. Oil, No. 3 Huntington, Orange	35- 5-11	7,140	P.B. 6,643
Brea Canyon Oil, No. 48 Brea Canyon, Orange	2- 3-10	2,700	sd. sh. drlg.
Standard Oil, No. 127 Murphy, West Coyote, Orange	18- 3-10	3,240	cmtd. 3,224
Standard Oil, No. 2 Bastanchury, W. Coyote, Orange	21- 3-10	5,671	sd. sh. drlg.
Standard Oil, No. 65 Emery, West Coyote, Orange	24- 3-11	3,760	hd. sd. drlg.
Standard Oil, No. 66 Emery, West Coyote, Orange	24- 3-11	1,580	sd. sh. drlg.
Standard Oil, No. 2-12 Coyote, East Coyote, Orange	22- 3-10	3,970	sd. sh. drlg.
Bartholomae Oil, No. 6 Sterns, East Coyote, Orange	22- 3-10	4,395	sd. sh. drlg.
Millerand Pet., No. 1 Miller, Yorba, Orange	22- 3- 9	692	sd. sh. drlg.
Oliver & Owen, No. 1 Anderson, Yorba, Orange	22- 3- 9	1,363	tested wet
Beverly Hills Pet., No. 1 Fricke, Yorba, Orange	21- 3- 9	1,914	cleaning out
Brown & Co., No. 1 Hurley, Yorba, Orange	22- 3- 9	1,787	pump 112 b.d.
Burmah Oil, No. 1 Sloan, Yorba, Orange	21- 3- 9	2,380	gr. sd. drlg.
Kelmar Oil, No. 1 Yorba, Orange	21- 3- 9	990	sd. sh. drlg.
Congress Oil, No. 1-K, Santa Ana Canyon, Orange	36- 3- 9	3,014	sd. sh. drlg.

KANSAS

Week Ending April 16 (Descriptions are East unless marked otherwise)

Barber County

Palmer Oil Corp. et al No. 1 Warwick, C NW sec. 29-31-10w. T.D. 4,815 ft.; D. &A.

Barton County

Crown Oil Co. No. 1 Schartz, NW sec. 7-20-11w. T.D. 3,352 ft.; p. 133 B.O. in 4 hrs.

R. E. Day et al No. 1 Felts, SE SE NE sec. 14-16-12w. S.D. 1,875 ft.

Gear and Atlantic Ref. Co. No. 1 Sullivan, NE SE SW sec. 29-17-13w. T.D. 3,360 ft.; R.U.S.T.

Murfin et al No. No. 1 Rexroot, NW SE sec. 14-17-13w. Drlg. 2,715 ft.

C. L. Price No. 1 Hammeke, NE NE SW sec. 12-18-12w. Sil. 3,415-27 ft.; T.D. 3,433 ft.; P.B. 3,429 ft.; D.&A.

Price et al No. 1 Wondra, NW NE sec. 10-17-13w. Arb. 3,333-35 ft.; S.D.

Sinclair Prairie Oil Co. No. 1 Frederick, SW SW SE sec. 16-16-11w. Arb. 3,322 ft.; T.D. 3,346 ft.; set 5-in. csg. 3,322 ft.

Butler County

T. S. Dustin No. 1 Miley, SE NW NE sec. 17-27-5e. U.R. 10-in. 990 ft.

Saco Oil Co. et al No. 1 Pettit, SW NW SW sec. 21-28-6. U.R. 8-in. csg. 2,370 ft.

Chase County

T. D. Duffy No. 1 Leedy, NE NW NW sec. 26-22-9. Drlg. 1,850 ft.

Cowley County

Bess & Gralapp et al No. 1 Hunt, CNL NE NW sec. 18-34-5e. Drlg. 2,130 ft.

Arthur Brewer No. 1 McDaniels, SW cor. sec. 24-30-4e. Miss. 2,912-30 ft.; D. &A.

Palmer Oil Corp. No. 1 Houser, SE NW SW sec. 13-30-3e. Drlg. 1,345 ft.

Smith et al No. 1 Wilson, SE SW NW sec. 9-33-6. Drlg. 1,350 ft.

Earl Wakefield No. 1 White, NW NE sec. 4-33-4e. Drlg. 3,215 ft.

Dickinson County

Fred Franks et al No. 1 Huffman, NW NW sec. 11-13-1e. R.U.

Ellis County

Carter Oil Co. No. 1 Foster, SE NW sec. 1-15-16w. T.D. 3,451 ft.; acd.

Duwe & Farris No. 1 Hadley, SE NE SE sec. 12-11-18w. Drlg. 3,159 ft.

Western Kansas O. & R. Co. et al No. 1 Cole, NE SE SE sec. 24-11-20w. T.D. 3,635 ft.; D.&A.

Ellsworth County

Ralph Wixson et al No. 1 Peterman, SW cor. sec. 28-17-10w. T.D. 3,306 ft.; P.B. 3,300 ft.; acd.; p. 167 B.O. and 62 B. W.; reacidized.

Finney County

Atlantic Ref. Co. No. 1 Nunn, C SE NE sec. 27-21-34w. T.D. 4,311 ft.; P.B. 1,-820 ft.; W.O.C.

Ford County

Sinclair Prairie Oil Co. No. 1 Young, CSL NE sec. 34-27-21w. Drlg. 2,830 ft.

Graham County

Continental Oil Co. and Cities Service Oil Co. No. 1 Morel, C W½ E½ NE sec. 15-9-21w. T.D. 3,720 ft.; swb. 50 B.O.P.H. for 15 hrs.; tstg.

Greenwood County

C. C. Whitaker et al No. 1 Bressner, NW SE sec. 8-26-13e. Drlg. 775 ft.

Harper County

Franklin Drlg. Co. No. 1 Walts, NE SW sec. 24-34-6w. Cd. 5,189-90 ft.; S.S.O. &G.

Jackson County

Haverback et al No. 1 Marble Bank, C NE NE sec. 26-9-14. S.D. 990 ft.

Jewell County

Hollingsworth Bros. No. 1 Wolfe, NE SW SE sec. 14-4s-8w. S.D. 100 ft.

Kearny County

Tri-County Gas Co. No. 1 Campbell, NE SE NE sec. 19-25-35w. Drlg. 500 ft.

Lane County

Phillips Pet. Co. No. 1 Kees, C SE SE sec. 3-19-30w. T.D. 4,911 ft.; fighting cave.

McPherson County

Darrah et al No. 1 Decker, SW SW SE sec. 12-21-2w. Drlg. 3,535 ft.

Meade County

Barnett et al No. 1 Adams, NW SE sec. 22-34-30w. S.D. 69 ft.

Bryan & West No. 1 Brown, NE SW sec. 5-33-27w. Spd. and abd.

Ness County

Schoeppel & Elmore No. 1 Moses, C SW NW sec. 10-18-25w. T.D. 500 ft.; R.U. R.

Trojan O. & G. Co. No. 1 Page Milling Co., SE SE NW sec. 36-18-26w. S.D. 3,-270 ft.

Pratt County

Atlantic Ref. Co. No. 1 Rice, NW NE NW sec. 11-28-15w. Set 13-in. csg. 339 ft.; W.O.C. 344 ft.

Reno County

Amerada Pet. Corp. and Westgate-Greenland Oil Co. No. 1 Johns, SE cor. sec. 25-22-5w. R.U.S.T. 3,902 ft.; pot. 912 B.O.; comp.

Carey et al No. 1 McPheeters, NE NW sec. 22-26-8w. Drlg. 3,910 ft.

McCole et al No. 1 Mathews, SW NW NW sec. 15-24-10w. T.D. 3,895 ft.; S.D.

Rice County

Marylyn Oil Co. et al No. 1 Vincent, NW NW NE sec. 5-21-10w. Spd.

Price et al No. 1 Gemeinhardt, NE SE sec. 18-18-10w. T.D. 3,305 ft.; P.B. 3,-298 ft.; pmpd. 15 B.O. and 25% wtr. daily.

Rooks County

Carter Oil Co. No. 1 Leist, SW cor. sec. 10-8-17w. Drlg. 2,663 ft.

Graham et al No. 1 Fike, SW cor. sec. 9-9-17w. C.O. 3,384 ft.

Producers Oil Co. No. 1 Ham, SW SW NW sec. 25-7-19w. Drlg. 450 ft.

Russell County

Central Pet. Co. No. 1 Furthmeyer, SE sec. 22-14-15w. Drlg. 750 ft.

Gulf Oil Corp. No. 1 Punker, C E½ NW SW sec. 22-15-12w. T.D. 3,362 ft.; D. &A.

Jones & Shelbourne et al No. 1 Kuhnle SE NW sec. 4-15-12w. T.D. 3,045 ft.; pot. 945 B.O.; comp.

Lauck & Moncrief No. 1 Miller, NE NW NW sec. 29-13-14w. T.D. 3,378 ft.; P.B. 3,090 ft.; R.U.S.T.

S. L. Parks No. 1 Gorham, SW SW NE sec. 19-15-15w. C.O. 3,315 ft.

Simpson et al No. 1 Boxberger, NE SW NW sec. 10-15-14w. H.F.W. 3,260-65 ft.; abd.

Smith & Unruh No. 1 Stielow, NW cor. sec. 32-11-14w. Fsg. 2,254 ft.

Sedgwick County

Frank Hudson et al No. 1 Fulton, NE SE sec. 35-28-1e. S.D. 1,738 ft.

McKnab No. 1 Garrett, SE SW SW sec. 18-29-2e. T.D. 3,540 ft.; D.&A.

Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. Drlg. 2,595 ft.

Stafford County

Cardinal Oil Co. et al No. 1 Fischer, SW NW SW sec. 31-21-12w. Drlg. 3,350 ft.

Continental Oil Co. et al No. 1 Fair CNL SW sec. 12-25-13w. T.D. 4,163 ft.; swb. 279 B.O. in 5 hrs.

Continental Oil Co. and Phillips Pet. Co. No. 1 Curtis, SE cor. sec. 26-24-13w. Drlg. 4,182 ft.

National Ref. Co. No. 1 Bonham, SW SW sec. 28-25-12w. T.D. 4,213 ft.; acd.; pmpd. pot. 330 B.O.

Pryor & Lockhart No. 1 De Selms, NE sec. 3-25-11w. T.D. 4,100 ft.; D.&A.

Stanolind O. & G. Co. No. 1 Carlile, NE SE SW sec. 22-25-12w. Drlg. 2,355 ft.

Sumner County

Hapenny et al No. 1 Evers, SE SE NE sec. 27-31-2e. O.W.D.D.; Stalnaker sd. 1,845 ft.; S.D.

Murphy et al No. 1 Tate, SE NW sec. 31-32-2e. Drlg. 597 ft.

Saco Oil Co. et al No. 1 Phipps, SW SE NE sec. 24-30-1w. Drlg. 2,940 ft.

Shawver and Pryor & Lockhart et al No. 1 McKowen, SW cor. sec. 18-32-1w. T.D. 3,741 ft.; R.U.S.T.

Woodson County

Craft No. 1 Pratt, NW SW sec. 36-26-15. T.D. 1,577 ft.; D.&A.

Union O. & R. Co. No. 1 Laidlow, CEL NW SW sec. 35-25-15e. Miss. 1,397-1,400 ft.; T.D. 1,424 ft.; D.&A.

OKLAHOMA

Week Ending April 16

NORTHERN OKLAHOMA

Beckham County

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. T.D. 2,708 ft.; S.D.

Cleveland County

W. A. Delaney et al No. 1 Bugher, SE SE SW sec. 12-7-2w. Drlg. 6,686 ft.

Cimarron County

Barnsdall Oil Co. No. 1 School Ld., C NW SE sec. 35-5-5ecm. R.U.R.

Comanche County

Clyde Roach No. 1-A Green, SE SE SW sec. 2-1n-13w. T.D. 670 ft.; S.D.

Creek County

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 3,018 ft.; 2,-000 ft. W.I.H. and S.S.O.; S.D.

Garfield County

J. E. Kendall et al No. 1-A State, SW cor. sec. 13-23-3w. Spd.

Garvin County

B. C. D. Edwards No. 1 Clark, NE cor. sec. 16-3n-3e. T.D. 2,676 ft.; P.O.P.

First Natl. Oil Co. No. 1 Butterly, NE NE SE sec. 22-1n-1e. Drlg. 95 ft.

Grady County

Gulf Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. T.D. 11,415 ft.; pipe stuck.

Greer County

J. H. Everitt No. 1 Graumann, NE NW NW sec. 11-5-21w. T.D. 550 ft.; S.D.

R. W. McDonald No. 1 Fite, SE SE sec. 34-7-21w. T.D. 1,114 ft.; H.F.W.; S.D.

Hughes County

Amerada Pet. Corp. and Stanolind O. & G. Co. No. 1 Preame, NW NW SE sec. 29-9-9. T.D. 3,395 ft.; P.B. 3,354 ft.; flwd. 12 B.F.P.H. for 22 hrs.; S.I.

Homer Doup et al No. 1 Bank, NE NE NW sec. 7-7-9. Drlg. by tools at 370 ft.

E. H. Moore et al No. 1 Hunter, NE NE NW sec. 30-4-9. Drlg. 5,375 ft.

Phillaine Oil Co. No. 1 Morrison, SE SE SW sec. 13-9-10. Drlg. 3,683 ft.

Phillips Pet. Co. No. 1 Becker, NE NW SW sec. 8-5-10. T.D. 6,286 ft.; plug. 5,612 ft.; drld. out to 5,660 ft.; tstg.

Troup & Strickland No. 1 Brown, NW SW NE sec. 32-6-8. S.D. 660 ft.

Kay County

J. R. Pierse No. 1 Hannon, SE cor. sec. 26-28-2e. T.D. 2,000 ft.; S.D.

E. J. Shaffer et al No. 1 McKee, NE NW sec. 20-28-1w. T.D. 2,500 ft.; S.D.

Kiowa County

Anderson-Prichard Oil Corp. No. 1 Cribbs, sec. 28-7n-19w. Drlg. 125 ft.

Anderson-Prichard Oil Corp. No. 1 Johnson, sec. 10-7-20w. Drlg. 540 ft.

Gauntt & Baker No. 1 Parks, NW NW SW sec. 29-7-20w. S.D. 720 ft.

Lincoln County

Wilcox O. & G. Co. No. 1 Evans, SW SW NW sec. 21-14-6. T.D. 3,106 ft.; R.U.S.T.

Wilcox O. & G. Co. No. 1 Royer, SE SE NE sec. 18-14-6. T.D. 3,372 ft.; P.B. 3,240 ft.; waiting.

Logan County

Carter Oil Co. No. 1 Lydick, C E½ NW NE sec. 23-15-4w. Drlg. 5,170 ft.

Sinclair-Prairie No. 1 Crews, SW SW NE sec. 27-16-1e. Drlg. 1,600 ft.

Muskogee County

Midco Oil Corp. No. 1 Dunagan, SE SE NE sec. 31-11-19. Drlg. 1,600 ft.

Okfuskee County

Alma Oil Co. No. 1 Martin, SW cor. sec. 4-12-7. Drlg. 2,020 ft.

Burke-Greis Oil Co. No. 1 Capps, SE cor. sec. 7-13-7. T.D. 3,227 ft.; shot 2,818-48 ft.; 2,874 ft.; S.D.O.

Osage County

Chevalier-Simon No. 1 Osage, NW NW SW sec. 33-27-5. S.D. 2,385 ft.

Norbia Oil Co. No. 1 Osage, SE cor. sec. 18-25-7. Drlg. sh. 1,520 ft.

Payne County

R. L. Kemp et al No. 1 Rafferty, SE SE NE sec. 6-18-5. T.D. 3,666 ft.; H.F.O. in 12 hrs.; to rerun 6-in. csg.

Sun Oil Co. & Loffland Bros. No. 1 Scafe, SE SE NE sec. 12-18-1e. Drlg. 5,427 ft.

Texas Co. No. 1 Logan, C W½ NW NW sec. 12-17-1e. Drlg. 2,370 ft.

Pontotoc County

Caloma Oil Corp. No. 1 Brents, SE NE SW sec. 4-1n-6. Drlg. 1,574 ft.

Cowley et al No. 1 McCormick, NW SW SW SE sec. 27-2n-4e. T.D. 330 ft.

Jack Lynch et al No. 1-A Parker, SW SW SE sec. 17-4-8. T.D. 3,180 ft.

L. P. Sandback et al No. 1 Porter, NE SE NW sec. 28-4-7. Drlg. 531 ft.

Union Dev. Co. No. 1 Abbott, SW NW NE sec. 34-3-6. T.D. 3,320 ft.; S.D.

Pottawatomie County

Mid-Continent Pet. Corp. et al No. 1 Smith, NE SE SW sec. 31-7-4. Drlg. 3,785 ft.

Pure Oil Co. No. 1 Lack et al, SE SW NW sec. 3-6-5. Drlg. 1,427 ft.

Seminole County

C. E. Davis et al No. 1 Jones, NW NE SW sec. 34-6-5. T.D. 2,314 ft.; P.B. 2,-307 ft.; p. 25 B.O. and 50 B.W.P.D.; comp.

W. A. Delaney et al No. 1 Swan, SE SW SW sec. 18-6-6. Cellar and pits.

W. B. Pine No. 1 Wright, SE SE NE sec. 16-6-6. P.B. 3,615 ft.; to acdz.

Summitt Drlg. Co. No. 1 Wass, SE NE NE sec. 30-8-7. Drlg. 4,185 ft.

W. A. Villines et al No. 1 Swan, NW NE NW sec. 28-7-5. T.D. 3,001 ft.; flwd. 105 B.F. in 22 hrs.

H. V. Woodson and Marydun Oil Co. No 1 Gilliland, SE SW sec. 24-11-7. Fsg. 4,311 ft.

Texas County

Hagey et al No. 1 Peck, C NE sec. 6-1n 13ecm. T.D. 2,895 ft.; to acdz.

Hardendorf & Kuhn No. 2 Wiggin, C NE sec. 2-2n-14ecm. Drlg. 1,800 ft.

Washita County

L. B. McWhirter No. 1 fee, NW SW SW sec. 34-8-19w. T.D. 2,147 ft.; fsg.

SOUTHERN OKLAHOMA

Atoka County

Amerada Pet. Corp. and Stanolind O. & G. Co. No. 1 Ridgway, NE cor. sec. 24-3s-9. Drlg. 4,208 ft.

C. M. Sheldon and Gardner Pet. Co. No 1 Lee, NE NW SW sec. 2-4s-10e. Drlg. 2,685 ft.

Carter County

Texas Co. No. 1-B Cathey, SE NE NE sec. 6-5s-1w. T.D. 5,685 ft.; to perf. and test.

Cotton County

Jim Turner et al No. 3 Collins, SE SE NE sec. 18-4s-10w. Loc.

Love County

Sinclair Prairie Oil Co. No. 1 Peabody, NE cor. sec. 35-6s-2w. Drlg. sd. 5,-822 ft.

Marshall County

Paul Robb et al No. 1 Vittitoe, C NE SE sec. 11-5s-4e. Drlg. 5,520 ft.

Stephens County

Coline Oil Co. No. 1 Johnson, C SW SE SE NE sec. 1-2n-8w. T.D. 10,000 ft.; 9,050 ft.; made several hd. flws., 37-grav. oil.

Helmerich & Payne No. 1 Mauersberger, C S½ SW SE sec. 29-2n-8w. Drlg. 6,-475 ft.

Tillman County

Russell & Ray No. 1 Hasley, NW NE NW sec. 4-1s-19w. Drlg. 2,090 ft.

Smith No. 2 Hammell, NE NW NW sec. 6-5s-15w. T.D. 2,000 ft.; S.D.

ARKANSAS

Bradley County

Phillips Pet. Co. No. 1 Marsden, sec. 9-16w-11s. Drlg. sh. 1,400 ft.

Columbia County

Standard Oil Co. of La. No. 2 Crone, NW cor. SE SW sec. 8-16-22. Drlg. brkn. sd.&sh. 1,510 ft.

Standard Oil Co. of La. No. 1 W. P. Phillips et al, 660 ft. N and W. C sec. 15-17-19. D.S.T. 6,307-15 ft.; rec. 42 stands oil and 3 stands S.W.; flwd. oil; drlg. ahead 6,419 ft.

Standard Oil Co. of La. No. 1 Waters et al, 660 ft. SE cor. SE SE sec. 7-16-22. Drlg. L.&sh. 4,062 ft.

Desha County

Columbian Fuel Corp. No. 1 Cross, SW cor. sec. 34-8s-3w. Drlg. 4,077 ft.

Hempstead County

H. D. Easton et al No. 1 LaGrone, sec. 5-12-26. T.D. 2,940 ft.; P.B. 1,007 ft.; drlg. sh. 2,709 ft.

Little River County

Joe G. Strahan et al No. 2 Dierks Lbr. Co. S.D. 2,459 ft.

Miller County—Rodessa

F. W. Burford No. 2 Ahern, sec. 10-20-28. Set 7-in. 6,095 ft.; T.D. 6,140 ft.; tstg.

F. W. Burford No. 2-B Thomas, sec. 12-20-28. Drk.

J. L. Caracas No. 1 Mitchell, SW cor. NW NW sec. 11-20-28. Set 9⅝-in. csg. 1,009 ft.

Gerhig Co. of Ark. No. 1-B Mitchell, sec. 11-20-28. Comp.; 735 B.P.D.; ¼-in. ck.; T.D. 6,188 ft.; perf. 6,125-38 ft.

G. C. Grasty No. 2 Mitchell, sec. 3-20-28. R.U.

W. M. Layton No. 2 McKellar, sec. 15-20-28. T.D. 6,025 ft.; set 5½-in. csg. 5,934 ft.

McClanahan & Feazel No. 2 Eason, C N½ NW SW sec. 12-20-28. Set 7-in. csg. 6,060 ft.; tstd. some oil 6,112 ft.; acd. with 3,000 gal.; tstd. small S.O.& G.; pkd. tbg. to swb. csg.; T.D. 6,112 ft.; rmg. tbg. 6,112 ft.

Roberts Drlg. Co. No. 2-B Capps, sec. 10-20-28. Drlg. sh. 4,927 ft.

Texas Canadian Oil Corp. No. 2 Thomas, NE cor. NW SE sec. 22-20-28. T.D. 6,-203 ft.; perf. 7-in. csg. 6,108-78 ft.; tstd. S.W.; arng. P.B. 6,160 ft.; tstd. S.W.; set pkrs. 6,140 ft.; tstd. S.W.; cmtd. and reperf. 6,108-32 ft.; plgd. and reperfd. 6,140-50 ft.; 2,100 ft. O. I.H.; swbg.

Mrs. S. O. Thompson No. 2 Greer, sec. 11-20-28. Sat. L. 6,125-53 ft.; set 7-in. csg. 6,125 ft.; T.D. 6,155 ft.

Nevada County

Bruce E. Wallace No. 2 Haynie, SE cor. SE NE sec. 5-14-21. Sdy. sh. 1,194-1,-204 ft.; slight odor gas; cg. ahead.

Pulaski County

A. L. Kitselman, No. 2 A. L. Kitselman Jr., SE SE SW sec. 2-1s-13e. S.D. 2,-642 ft.

Union County—Shuler

R. T. Adams No. 2 Justiss, sec. 7-18-17. Drlg. 2,745 ft.

R. T. Adams No. 3 Justiss, sec. 7-18-17. Drlg. 2,000 ft.

Alice Sydney Oil Co. No. 2 Powledge, sec. 7-18-17. Set 10¾-in. csg. 1,650 ft.

Alice Sydney Oil Co. No. 3 Powledge, SW cor. SE SE sec. 7-18-17. R.U.

E. M. Jones No. 3 Marine Oil Co., NE NW SE sec. 17-18-17. Set 16-in. csg. 138 ft.; drlg. rd. and gry. sh. 6,698 ft.

E. M. Jones et al No. 2-A Murphy, sec. 19-18-17. Drlg. rd. and gry. sh. 5,336 ft.

Lion Oil Ref. Co. No. 3 Marine Oil Co., sec. 17-18-17. Drlg. rd. and gry. sh. 5,482 ft.

Lion Oil Ref. Co. No. 1 Mayfield, SE cor. Lot 3, Fract. NW¼ sec. 18-18-17. Cg. 7,518 ft.

Lion Oil Ref. Co. No. 2 Mayfield, Lot 2, sec. 18-18-17. R.U.

Lion Oil Ref. Co. No. 1 Edna Morgan, NE cor. Lot 5, NW sec. 18-18-17. Drlg. 2,850 ft.

Lion Oil Ref. Co. No. 2 Edna Morgan, sec. 18-18-17. Set 16-in. csg. 98 ft.

Lion Oil Ref. Co. No. 4-A Edna Morgan, NW cor. Lot 1, SW sec. 18-18-17. Top Jones sd. 7,504 ft.; top L. 7,602 ft.; set 5½-in. csg. 7,613 ft.; T.D. 7,620 ft.; comp.; 757 B.P.D. on 16/64-in. ck.; perf. 7,530-61½ ft.

Lion Oil Ref. Co. No. 5-A E. Morgan, NE cor. Lot 7, SW sec. 18-18-17. Set 7-in. csg. 7,620 ft.; T.D. 7,630 ft.

Lion Oil Ref. Co. No. 2-C D. S. and J. C. Morgan, SW cor. SE SE sec. 18-18-17. Comp.; 664 B.P.D.; 32/64-in. ck.; T.D. 7,623 ft.

Marine Oil Co. No. 5 fee, sec. 17-18-17. Drlg. rd. sdy. sh. 3,257 ft.

Marine Oil Co. No. 6 fee, sec. 17-18-17. Drlg. 1,744 ft.

Marine Oil Co. No. 1 Miller, SE cor. Lot 1, NW sec. 18-18-17. Top Jones sd. 7,-543 ft.; top L. 7,655 ft.; set 7-in. csg. 7,709 ft.; T.D. 7,729 ft.; comp.; 1,207 B.P.D. on 20/64-in. ck.

Phillips Pet. Co. No. 3 Justiss, Lot 6, sec. 18-18-17. Drlg. hd. L. 5,439 ft.

Phillips Pet. Co. No. 4 Justiss, Lot 6. sec. 18-18-17. Top Jones sd. 7,512 ft.; cg. 7,527 ft.

Phillips Pet. Co. No. 2 Marine, NE cor. NW NE sec. 20-18-17. Drlg. rd. sh.& sd. 7,224 ft.

Phillips Pet. Co. No. 3 Marine Oil Co., sec. 20-18-17. Drlg. sd.&sh. 4,250 ft.

Phillips Pet. Co. No. 4 Marine Oil Co., sec. 20-18-17. Drlg. sh. and shells 2,-883 ft.

Phillips Pet. Co. No. 5 Marine Oil Co., sec. 20-18-12. Rmg. to bttm. 2,306 ft.

Phillips Pet. Co. No. 3 Marks, C Lot 2, SW sec. 18-18-17. R.U.

Texas Canadian Oil Corp. No. 1 Powledge, C NE NW NW sec. 21-18-17. Fsg. 7,544 ft.

Union County—Other

J. R. Lockhart No. 1 Raulston, sec. 12-17-14. R.U.

Ark. Southern Oil Corp. No. 2-A Simmons, SW cor. NE NW sec. 15-18-13 T.D. 2,307 ft.; comp.; pmpg. 30 B.P.D., 50% S.W.

Ark. Southern Oil Corp. No. 3-A Simmons, sec. 15-18-13. R.U.

E. G. Bradham No. 1 S. L. Robbins, SW cor. SW NE sec. 12-19-16. D.&A. 2,-300 ft.

W. D. Wingfield, Tr. No. 2 Kidd Est., SE cor. NW SW sec. 15-18-13. Sd. S.D. 2,257-2,300 ft.; set 6-in. csg. 2,250 ft.; T.D. 2,300 ft.; W.O.S.R.

W. D. Wingfield, Tr., No. 1 Union Sawmill Co., sec. 15-18-13. Loc. abd.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

Gulf Oil Corp. No. 2 Allison, sec. 3-23-16. Drlg. L.&anhy. 5,657 ft.

J. S. Rushing No. 1 Zylks, sec. 10-23-16. Drlg. L.&sh. 4,846 ft.

Shell Pet. Corp. No. 2-B U. S. Govt., SE cor. sec. 3-23-16. Set 5-in. csg. 5,984 ft.; T.D. 5,988 ft.; comp.; 78 B.P.D.; ¼-in. ck.; perf. 5,965-72 ft.

Shell Pet. Corp. No. 3-B U. S. Govt., sec. 3-23-16. Comp.; 82 B.P.D.; ¼-in. ck.; perf. 5,953-58 ft.; T.D. 5,970 ft.

Shell Pet. Corp. No. 4-B U. S. Govt., sec. 3-23-16. Set 5-in. csg. 6,002 ft.; T.D. 6,003 ft.; comp.; 3.8 B.P.H.; ¼-in. ck.; perf. 5,983-90 ft.

Shell Pet. Corp. No. 5-B U. S. Govt., sec. 3-23-16. Drlg. L.&anhy. 5,608 ft.

N. LOUISIANA WILDCATS

Bienville Parish

Gulf Ref. Co. No. 1 Goodpine, sec. 25-14-8. Drlg. hd. sd. 5,398 ft.

Producers O. & G. Co. No. 1 Locke, NE cor. sec. 9-15-10. O.W.W.O.: old T.D. 2,960 ft.; rmd. to 800 ft.; S.G.; arng. to D.D.

Bossier Parish

Premier Inv. Co. No. 1 McDade, SE SW NE sec. 28-19-11. Drlg. sh. 2,026 ft.

Sloan, Lloyd et al No. 1 Sherrill, sec. 12-19-12. S.D. 508 ft.; rep. rig.

Triangle Drlg. Co. No. 3-A Herold, NE SW sec. 13-17-12. R.U.

Union Prod. Co. No. 2-C Skannel, sec. 13-17-12. T.D. 3,121 ft.; 7-in. at 3,091 ft.; comp.; 1,437 B.P.D.; ½-in. ck.; 40% S.W.

Union Prod. Co. No. 2 Thigpen-Herold, sec. 13-17-12. R.U.

Caddo Parish

Carroll et al No. 1 Hart, NW sec. 26-21-16. R.U.

J. P. Driscoll No. 2 Sattelite, sec. 10-20-15. Drlg. 1,775 ft.

W. D. Flynn No. 4 Natalie, SE cor. sec. 10-21-16. Set 7-in. at 998 ft.; W.O.; T.D. 1,027 ft.

Hancock & Ulman No. 3 Helpman, sec. 16-21-16. T.D. 1,014 ft.; W.O.S.R.

J. T. Humphrey No. 1 Caddo Levy Bd., sec. 26-21-16. S.D. 1,350 ft.

Magnolia Pet. Co. No. 24 Dillon Hrs., sec. 23-21-15. Set 7-in. csg. 1,446 ft.; tstg. 1,635 ft.; comp.; 86 B.P.D.; T.D. 1,635 ft.

Pet. Heat & Power Co. No. 3 Stiles, sec. 33-21-16. Set 6-in. at 948 ft.; T.D. 958 ft.; W.O.S.R.

Petroleum Heat & Power Co. No. 1

Wemple, NW cor. sec. 14-20-15. Set 6-in. csg. 2,185 ft.; drlg. sh. 2,260 ft.
Simplex Oil Co. No. 6 Natalie, sec. 10-20-15. Cg. 1,982 ft.
G. R. Stevens No. 3 Hart, sec. 22-21-16. Set 6-in. csg. 997 ft.; W.O.S.R. 1,003 ft.
Tippett Oil Corp. No. 1 Lewis, sec. 27-20-16. Drlg. sd. 950 ft.
Triple M Oil Co. No. 1 Boisseau, sec. 34-21-16. S.D.; W.O. 1,853 ft.

Claiborne Parish

Atlantic Ref. Co. No. 1 English, sec. 29-21-4. Set 5½-in. csg. 5,223 ft.; tstg. 5,-243 ft.; comp.; 60 B.P.H.; ¾-in. ck.; T.D. 5,243 ft.
Gulf Oil Corp. No. 1 Whitman, sec. 2-20-5. Sat. L. 5,190-97 ft.; rng. csg. 5,-205 ft.
Hollifield & McFarland No. 4 Patton Est., sec. 2-20-5. Drlg. sh.&L. 5,128 ft.
T. L. James No. 3 Fowler, C NW SE sec. 32-21-4. Drlg. 1,676 ft.
C. H. Lyon et al No. 1-A Lloyd, sec. 2-20-5. R.U.
Magnolia Pet. Co. No. 1 Lloyd, NW SE sec. 2-20-5. Drlg. sh. 3,600 ft.
E. T. Oakes et al No. 1 Whitman, sec. 2-20-5. Sat. L. 5,264-68 ft. and 5,269-73 ft.; T.D. 5,277 ft.; set 5½-in. csg. 5,-261 ft.
C. R. Schuster No. 1 Kilgore, sec. 28-21-15. R.U.; S.D.
Sklar Oil Corp. No. 1 Kilgore, sec. 11-20-5. R.U.
Texas Co. No. 1 Tippett, sec. 33-21-4. Set 10-in. csg. 816 ft.
Union Prod. Co. No. 2 Brownfield, sec 5-19-5. T.D. 9,964 ft.; sh.; recmtd. back to 8,850 ft.; rmg. bridge at 8,-475 ft.; drlg. 10,332 ft.
Union Prod. Co. No. 1 Coleman, sec. 43-7-9e. Drlg. anhy.&sh. 4,380 ft.
G. H. Vaughn et al No. 2-B Eppinger, sec. 30-21-4. Drlg. 2,340 ft.
Weaver Oil Corp. No. 2 Edmonds, sec. 16-20-5. Drlg. sh. 4,380 ft.

De Soto Parish

S. S. Alexander No. 1 Stoll, NE cor. sec. 5-12-16. O.W.W.O.; old T.D. 6,002 ft.; set short string 5½-in. csg. 5,479 ft. and will perf.
La. Seaboard Oil Ref. Co. No. 1 Lawrence, sec. 36-12-14. D.S.T. 2,038-62 ft.; tstd. 80 jts. mud cut with oil in 20 min.; S.D. 2,062 ft.
Paul Miller No. 1 Jal Drlg. Co., C sec. 7-11-11. Cg. 2,745 ft.
Pet. Heat & Power Co. No. 1 DeSoto Corp., SE cor. SW NW sec. 7-11-1[illegible] Missed sd.; T.D. sh. 2,868 ft.; P.B. 2,-000 ft.; S.D.
Pet. Heat & Power Co. No. 1-B Kavanaugh, sec. 12-11-12. R.U.
Pet. Heat & Power Co. No. 1 Matthews sec. 29-12-11. Old T.D. 4,003 ft.; P.B. 3,950 ft.
Pet. Heat & Power Co. No. 1 Sample, sec. 29-12-11. Set 7-in. csg. 2,680 ft.; perf. 2,649-59 ft.; comp.; 24 B.P.D.; ½-in. ck.; T.D. 2,680 ft.; est. 500,000 ft. gas per day.
Pet. Heat & Power No. 1 Williams, W. R., NW NE sec. 13-11-12. (Cor.); D.S.T. 2,800-18 ft.; S.G.: 7-in. csg. set 2,-800 ft.; tstg. 2,827 ft.; W.O.; T.D. 2,-827 ft.; tstg.
Texas Co. No. 2 White, SW NE sec. 24-12-12. Set 4½-in. csg. 835 ft.; tstd. dry; S.G.; rng. sd. pmp.; T.D. 890 ft.

Grant Parish

C. L. Thompson No. 1 McNeely Est., NE cor. sec. 10-6-3w. Set 10-in. csg. 613 ft.

La Salle Parish

Alexander & Jarvis No. 1 Tremont, sec. 2-9-1e. S.D. 1,549 ft.
Cupples et al No. 1 King, sec. 25-10-1e. S.D. and W.O. 1,541 ft.
Pet. Heat & Power Co. No. 2 Wright, sec. 26-10-1e. Cg. 1,526 ft.

Lincoln Parish

Lyons & Neely No. 1 Brazzill, C SE NW sec. 17-20-4. Set 10¾-in. csg. 845 ft.
Magnolia Pet. Co. No. 2 Patton, sec. 7-20-4. Drlg. L.&sh. 5,288 ft.
Magnolia Pet. Co. No. 3 Pollock, C N½ SW SE sec. 5-20-4. Drlg. L. 4,278 ft.
E. T. Oakes and Easton No. 1 Griggs, sec. 36-18-1w. D.&A. 5,941 ft.

Morehouse Parish

W. J. Furlong No. 1 Clark, sec. 10-20-7e. Set 9⅝-in. csg. 2,805 ft.; top Big L. 6,207 ft.; S.D. hd. L. 7,023 ft.

Natchitoches Parish

W. P. Ryan et al No. 1 Lambert, sec. 4-8-9. Drlg. 1,506 ft.

Red River Parish

Glassell & Whitehurst No. 1 LeLong, NE NW NE sec. 25-12-11. S.D. 2,874 ft.
Yandell Rogers No. 5 Gaspair, SE SW sec. 27-13-11. Set 5½-in. csg. 2,453 ft.; T.D. 2,474 ft.; W.O.S.R.

Sabine Parish

H. N. Morris No. 1 Irving & Bishop, C NW NW sec. 18-7-12. S.D.; will set csg. 2,000 ft.
Plymouth Oil Corp. No. 1 Kezerle, sec. 3-7-13. Set 7-in. csg. 2,065 ft.; T.D. 2,-065 ft.
W. L. Posey No. 1 Ramirez, C NW NW sec. 12-7-13. Set 6-in. csg. 2,111 ft.; tstd.; bailing to test 2,555 ft.
Republic Gas Co. No. 1 Whitney Corp., sec. 8-9-13. O.W.W.O.; old T.D. 8,510 ft.; drlg. to bttm. of hole.
Royal O. & G. Co. No. 3-A Frost Lbr. Co., C NE SE sec. 19-9-13. Drlg. 2,-010 ft.
Sutton-Zwolle Oil Co. No. 1 Sabine Lbr. Co., SE cor. NW NE sec. 23-7n-14w Set 9⅝-in. csg. 2,215 ft.; D.S.T. 3,843-53 ft.; rec. 1,200 ft. P.L.O. 9 min.: W.P. 275 lbs.; T.D. 3,865 ft.; set 7-in. csg. 3,846 ft.; T.D. 3,857 ft.; acdzd with 750 gals.; tstd. some oil; reacdzd with 3,000 gal. and tstd. dry; cg. ahd.

Tensas Parish

H. V. Schumacker No. 4 Mount Plantation, sec. 39-11-12e. Drlg. sd.&sh. 1,-098 ft.

Union Parish

Standard Oil Co. of La. No. 1 Frost Lbr sec. 14-21-1e. Drlg. sh. and stks. L. 8,-750 ft.

Webster Parish

Fohs Oil Co. No. 1 Crichton, sec. 33-21-10. Drlg. L.&sh. 5,540 ft.
Hunt Oil Co. No. 6 Babb, C NE SW sec. 14-21-10. Drlg. sdy. sh. 6,583 ft.
Hunt Oil Co. No. 7 Babb, C NW SE sec. 14-21-10. Set 13⅜-in. csg. 738 ft.
Hunt Oil Co. No. 9 Davis, sec. 14-21-10. Drk.
Hunt Oil Co. No. 3 Webb, C NW SW sec. 13-21-10. Set 13⅜-in. csg. 712 ft.
Magnolia Pet. Co. No. 1 Coyle-Tiner, C sec. 21-21-10. Drlg. sdy. L. 7,890 ft.
Magnolia Pet. Co. No. 1 Sexton Unit, NW SE sec. 32-23-9. Cd. Bodcaw sd.; no show; cd. sd. 8,293-8,310 ft.; gas odor; slight show gas and dist.; cg. hd. sdy. L. 8,599 ft.; ran Schlumberger 8,521 ft.; cd. sd. 8,899-8,906 ft.; gas odor; sd. at 9,007 ft.; dist. odor; drlg. sh.&hd. sd. 9,127 ft.
Midstates Oil Corp. No. 1 Welori Lbr Co., C NW NW sec. 3-20-10. Cg. 6,-014 ft.
Morgan et al No. 1-A Hope, C NW NW sec. 25-21-10. Drlg. sd.&sh. 6,250 ft.
North American Oil Consol. Co. No. 2 Stewart, C NE NE sec. 32-21-10. Drlg. ch. rk.&sh. 2,510 ft.
Ohio Oil Co. No. 3 Bodcaw, Acct. 4, sec. 28-21-10. Drlg. sh. 5,930 ft.
Ohio Oil Co. No. 49 Bodcaw (Acct. 3) C NW NW sec. 34-21-10. Set 13⅜-in csg. 808 ft.; drlg. sh. 7,675 ft.
Ohio Oil Co. No. 1 Crutsinger, NE cor sec. 35-2-10. Drlg. hd. sd. 7,561 ft.
Ohio Oil Co. No. 1 Gray, NW cor. SE NW sec. 28-21-10. Drlg. sdy. sh.&L. 3,219 ft.
Ohio Oil Co. No. 24 Gray, NE cor. sec. 35-21-10. Drlg. L.&sh. 6,076 ft.
Ohio Oil Co. No. 1 A. H. Gray, Acct. 3, sec. 26-21-10. Set 9⅝-in. csg. 5,700 ft.; T.D. 5,836 ft.
Ohio Oil Co. No. 5 Holloway, NE cor. SE NE sec. 23-21-10. Holloway sd. 5,-603-15 ft.; tstg.
Ohio Oil Co. No. 1 Jackson, sec. 27-21-10. Drlg. sh.&anhy. 4,299 ft.
Ohio Oil Co. No. 1 Sandlin, sec. 27-21-10. Drlg. sh.&anhy. 4,579 ft.
Oliphant No. 3 Banks, sec. 34-21-10. Top Tr. Pk. 5,797 ft.; drlg. reds & sd. 6,748 ft.
A. G. Oliphant No. 2 Hodges, C NW SE sec. 34-21-10. Drlg. sh. 3,597 ft.
A. G. Oliphant No. 1 Stewart, sec. 33-21-10. Holloway sd.; no show; drlg. sdy. sh. 7,259 ft.
Stanolind O. & G. Co. No. 1 Pardee Co. SW NE sec. 36-21-10. S.D., high wtr., 7,142 ft.
Union Prod. Co. No. 1 Josey, sec. 27-21-10. R.U.
Union Prod. Co. No. 1 Stewart, SE cor. SE sec. 28-21-10. Bodcaw sd. 8,269-8,-319 ft.; set 7-in. csg. 8,270 ft.; T.D. 8,-325 ft.; S.D.; W.O.

Winn Parish

G. W. Ziegen No. 13 La. Cen. Lbr. Co., sec. 4-13-1e. D.&A. 1,761 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Franciol, sec. 67-12s-3e. R.U.
Continental Oil Co. No. 1 Hebert, sec. 67-12s-3e. 10¾-in. csg. 1,510 ft.; T.D. 7,448 ft.; D.S. stk.; fsg.; P.B. 7,301 ft.; to sdtrk.
Continental Oil Co. No. 1 Motty, sec. 67-12s-3e. Drlg. sh. 5,710 ft.

Anse La Butte—St. Martin Parish

Y. D. Spell No. 1 Deborah, sec. 117-9s-5e. T.D. 960 ft.; I.P. 75 bbls. fluid, 20% S.W.

Baton Rouge—East Baton Rouge Parish

Wm. Helis No. 3 La. State, sec. 65-7s-1w. R.U.

Bay St. Elaine—Terrebonne Parish

F. J. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. S.D. 816 ft.
Texas Co. No. 16 State, sec. 12-22s-17e. Drlg. sd.&L. 5,685 ft.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 6 Wilbert Sons Lbr. Co., sec. 66-9s-11e. T.D. 6,804 ft.; S.D.

Bayou Cocotriz—Terrebonne Parish

Shell Pet. Corp. No. 5-B Realty Co. Drlg. sh. 8,915 ft.

Bayou De Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 Gheens Realty Co., sec. 56-15s-20e. T.D. 7,010 ft.; P.B. to 6,351 ft.; D.S. stk. at 6,451 ft.
Amerada Pet. Corp. No. 4 State, sec. 13-15s-20e. Drlg. surf. 240 ft.

Big Lake—Cameron Parish

Union Sulphur Co. No. 2 Miami Corp., sec. 19-12s-8w. T.D. 7,924 ft.; P.B. 7,-650 ft.; to sdtrk.; cg. sd. 9,386 ft.

Black Bayou—Calcasieu Parish

Shell Pet. Corp. No. 41 Watkins, sec. 17-12s-12w. Drlg. sdy. sh. 4,121 ft.

Caillou Island—Terrebonne Parish

Texas Co. No. 1 L.L.&E., sec. 18-23s-20e. T.D. 5,310 ft.; P.B. and sdtrkd.; drlg. sd. 4,695 ft.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 23 School Ld., sec. 16-14s-13w. Drlg. sh.&L. 5,233 ft.
Burton-Sutton Oil Co. No. 24 School Ld., sec. 16-14s-13w. Drk.
Burton-Sutton Oil Co. No. 25 School Ld., sec. 16-14s-13w. R.U.R.
Magnolia Pet. Co. No. 22 Cameron Meadows, sec. 21-14s-13w. T.D. 4,013 ft.; fsg.

Cheneyville—Rapides Parish

Amerada Pet. Corp. No. 4 Well, sec. 53-1s-2e. 9⅝-in. csg. 6,471 ft.; T.D. 7,045 ft.; salt; P.B. 6,718 ft.; perf. csg. 6,695-6,710 ft.; tstd. S.W.; P.B.; perf. csg. 5,732-36 ft.; I.P. 492 B.P.D.; 10/64-in. ck.
Texas Co. No. 3 Well Ld. Co., sec. 53-1s-2e. Drlg. sh. 1,886 ft.

Charenton—St. Mary Parish

Pan American Prod. Co. No. 3 South Coast Corp., sec. 30-18s-10e. T.D. 7,-833 ft.; P.B. 7,228 ft.; sdtrkd.; drlg. sh. 8,441 ft.
Pan American Prod. Co. No. 1 H. L. Laws Realty Co., sec. 2-13s-9e. T.D. 3,034 ft.; abd.
Pan American Prod. Co. No. 7 Laws Realty Co., sec. 25-13s-9e. T.D. 1,890 ft.; 7-in. csg. 1,881 ft.; fsg.

Choctaw—Iberville Parish

La. Crusader Oil Co. No. 2 Schwing, sec. 29-8s-11e. Drlg. sd. 4,720 ft.
Standard Oil Co. No. 8 Gay, sec. 52-9s-11e T.D. 6,801 ft.; P.B. 3,200 ft.; T.D. 3,398 ft.; abd.

Darrow—Ascension Parish

Darrow Oil Co. No. 1 Dennis, sec. 68-10s-2e. T.D. 2,150 ft.; S.D.
Humble O. & R. Co. No. 17 Community, sec. 33-10s-2e. T.D. 6,584 ft.; perf. csg. 6,064-75 ft.; making sqze. job.
Humble O. & R. Co. No. 18 Community, sec. 30-10s-2e. R.U.
Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 21 State, sec. 5-22s-16e T.D. 7,174 ft.; P.B. 5,490 ft.; sdtrkd.; drlg. sd.&sh. 6,089 ft.

Fausse Point—Iberia Parish

Texas Co. No. 4 State, sec. 35-11s-8e. 18⅝-in. csg. 90 ft.; top sd. 7,912 ft.; top salt 6,595 ft.; T.D. 9,246 ft.; rng. csg.

Garden Island—Plaquemines Parish

Texas Co. No. 27 State, sec. 38-23s-33e. Drlg. sh. 3,381 ft.

Hackberry—Cameron Parish

W. T. Burton No. 2 Kenedy, sec. 22-12s-10w. Drlg. sh. 430 ft.
W. T. Burton No. 3 Lewis, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 8 Carter & Sweeney, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 10 Carter & Sweeney, sec. 22-12s-10w. R.U.: (cor.).
Stanolind O. & G. Co. No. 54 State-Kelso, sec. 16-12s-10w. T.D. 5,825 ft.; P.B. 4,000 ft.; drlg. sd.&sh. 5,387 ft.
Stanolind O. & G. Co. No. 55 State-Kelso Bayou, sec. 16-12s-10w. Drlg. sh. 743 ft.
Superior Oil Co. No. 1 Benson-Vincent, sec. 30-12s-10w. Cg. sh. 6,392 ft.
Texas Co. No. 24-B State, sec. 12s-9w. T.D. 8,052 ft.; blew out; stk. D.S.
Union Sulphur Co. No. 1 Doiron, sec. 37-12s-10w. T.D. 4,888 ft.; 7-in. csg. 4,879 ft.; heaving sh. 5,940 ft.; P.B. 3,572 ft.; sdtrkg. at 3,531 ft.; drlg. sh. 5,-081 ft.
York Oil Field Supply No. 3 Vincent, sec. 28-12s-10w. T.D. 2,947 ft.; P.B. 2,895 ft.; P.B. 2,848 ft.; to sdtrk.; T.D. 3,285 ft.; P.B. to 2,800 ft.; R.U. to pmp.; I.P. 75 B.P.D.; pmpg.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 1 St. Mary Parish Ld. Co., sec. 37-17s-9e. 13⅜-in. csg. 1,837 ft.; cg. sh.&L. 10,752 ft.; cd. sd.; oil odor 10,655-95 ft.; T.D. 11,067 ft.; (cor.); W.O.C.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 2 Carter, sec. 38-13s-9e. T.D. 9,939 ft.; 7-in. csg. 9,937 ft.; T.D. 10,476 ft.; well tried to blow out; P.B. and sdtrkd.; drld. to 10,482 ft.; D.S. stk.
Herton Oil Co. No. 1-A Roane Sugar Co., sec. 38-13s-9e. Drlg. sh. 6,139 ft.

Jennings—Acadia Parish

F. W. Bennett No. 2 Brethern, sec. 41-9s-2w. Drlg. sh. 3,420 ft.
H. Fotiades No. 2 Washington Opelousas, sec. 41-9s-2w. 16-in. csg. 106 ft.; drlg. L. 6,030 ft.
Fred I. Getty No. 1 Lyons Oil Corp., sec. 46-9s-2w. T.D. 1,597 ft.; 6⅝-in. csg. 1,-580 ft.
Gulf Ref. Co. No. 39 Arnaudit, sec. 47-9s-2w. T.D. 4,840 ft.: P.B. 2,585 ft.: T.D. 4,586 ft.; 9⅝-in. csg. 4,578 ft.; cg. sh. 6,656 ft.
Jolly Pet. Co. No. 2 McFarlain, sec. 41 9s-2w. T.D. 7,180 ft.: 7-in. csg. 7,020 ft.
L. & L. Oil Co. No. 1 Syndicate Clement, sec. 46-9s-2w. Cg. sd.&sh. 1,595 ft.
T. G. Markley No. 1 Gulf Ld., sec. 45-9s-2w. R.U.
Pet. Heat & Power Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. S.D. 1,205 ft.
Stanolind O. & G. Co. No. 19 Houssiere-Latrelle, sec. 47-9s-2w. T.D. 6,448 ft.: P.B. 6,135 ft. to strtn. hole; T.D. 6,979 ft.: P.B. 6,700 ft.: P.B. and sdtrkg. 7,-509 ft.; drlg. sd.&L. 7,576 ft.
Superior Oil Co. No. 2 Julis Clement, sec. 46-9s-2w. Drlg. sd.&sh. 6,174 ft.
Superior Oil Co. No. 6 Jennings-Heywood, sec. 41-9s-2w. T.D. 6,056 ft.; fsg. P.B. and sdtrkd.; T.D. 6,472 ft.; 7-in. csg. 6,339 ft.
Superior Oil Co. No. 9 Leckelt, sec. 42-9s-2w. T.D. 7,281 ft.; fsg.
Superior Oil Co. No. 10 Leckelt, sec. 43-9s-2w. Drlg. sd.&sh. 1,485 ft.
Superior Oil Co. No. 12 Leckelt, sec. 42-9s-2w. Drlg. sd.&sh. 6,387 ft.
Superior Oil Co. No. 13 Leckelt, sec. 42-9s-2w. R.U.
Victor Weisse No. 1 Clement, sec. 46-9s-2w. Cg. sh. 3,195 ft.

Lafitte—Jefferson Parish

Texas Co. No. 10 Lafitte, sec. 17-17s-24e. Drlg. sh.&L. 8,082 ft.
Texas Co. No. 1-B Madison, sec. 19-17s-24e. Drlg. sh.&L. 6,002 ft.
Texas Co. No. 3 Marrero Ld. Co., sec. 29-17s-24e. R.U.
Texas Co. No. 9 Rigolet-Cooperation Fur Co., sec. 29-17s-24e. Drlg. sh. 9,985 ft.

Lake Barre—Terrebonne Parish

Texas Co. No. 42 State-Lake, sec. 40-21s-19e. Drlg. L. 1,256 ft.

Lake Long—Lafourche Parish

Fohs Oil Co. No. 4 State, sec. 64-17s-19e. 10¾-in. csg. 2,707 ft.; drlg. sh. 9,030 ft.

Lake Pelto—Terrebonne Parish

Texas Co. No. 19 State-Lake, sec. 17-23s-18e. T.D. 5,703 ft.; sdtrkd.; drlg. sh. 6,973 ft.

Leesville—Lafourche Parish

Texas Co. No. 68 L.L.&E., sec. 27-21s-22e. T.D. 5,139 ft.; sdtrkd.; drlg. sdy. sh. 4,259 ft.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Wurzlow, sec. 32-19s-19e. Drlg. sh.&L. 7,381 ft.
Union Prod. Co. No. 1 Fundenburk, Unit 1, sec. 50-19s-19e. Drlg. sh. 7,010 ft.

New Iberia—Iberia Parish

Wm. Helis No. 5 Bolivar, sec. 56-12s-7e. T.D. 4,337 ft.; salt; P.B. and sdtrkd. T.D. 3,594 ft.; 7-in. csg. 3,100 ft.; reset screen; tstg.
Wm. Helis No. 4 Schwing, sec. 56-12s-7e. T.D. 4,216 ft.; P.B.; sdtrkd.; T.D. 3,627 ft., salt.
Texas Co. No. 4 Bryant, sec. 25-12s-7e. Drlg. sh. 1,814 ft.
Texas Co. No. 2 Burke, sec. 56-12s-7e. R.U.
Texas Co. No. 5 Duhe, sec. 26-12s-7e. Drlg. sh. 4,949 ft.
Texas Co. No. 11-B Hanzen, sec. 54-12s-7e. Drlg. sh. 4,217 ft.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 1 R. C. Davis, sec. 45-8s-1e. R.U.
Humble O. & R. Co. No. 2 Habetz, sec 45-8s-1e. Drk.
Humble O. & R. Co. No. 1 Smith, sec 44-8s-1e. T.D. 8,293 ft.; 7-in. csg. 8,287 perf. csg. 8,280-85 ft.; tstd. S.W.
Humble O. & R. Co. No. 1 Traham, sec 3-9s-1e. T.D. 9,780 ft.; 7-in. csg. 9,771 ft.; tstg.

Port Barre—St. Landry Parish

Pan American Prod. Co. No. 5 Cormier, sec. 4-6s-5e. Drlg. sh. 1,168 ft.
Texas Co. No. 22 Botney Bay Lbr. Co., sec. 4-6s-5e. T.D. 3,569 ft.; P.B. 3,434 ft.; S.D. for csg.

Quarantine Bay—Plaquemines Parish

Gulf Ref. Co. No. 4 State, sec. 17-19s-17e. T.D. 5,700 ft.; 9⅝-in. csg. 5,560 ft. cd. sd., oil odor 7,853-8,227 ft.; T.D. 8,305 ft.; rmg.; D.S.T. 8,116-8,227 ft. tstd. 540 ft. oily mud, 60 ft. oil, 640 ft. S.W.

Raceland—Lafourche Parish

Amerada Pet. Corp. No. 2 South Coast Corp., sec. 34-15s-19e. R.U.

Roanoke—Jeff Davis Parish

Humble O. & R. Co. No. 1 Williams, sec. 13-9s-4w. Drlg. sh. 7,200 ft.

Sorrento—Ascension Parish

Pan American Prod. Co. No. 9 United Ld. Co., sec. 15-10s-4e. T.D. 1,333 ft.; I.P. 130 B.P.D.; ⅞-in. ck.

South Elton—Jeff Davis Parish

Stanolind O. & G. Co.-Amerada Pet. Corp. No. 3-B Calcasieu Natl. Bank, sec. 27 7s-3w. T.D. 9,154 ft.; conditioning hole: 9⅝-in. csg. 8,647 ft.; T.D. 13,210 ft.; D.S. stk.; P.B.; 7-in. csg. 9,230 ft.; W.O.C.

Starks—Calcasieu Parish

Capital Oil Co. No. 1 Lutcher-Moore, sec 24-9s-13w. R.U.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 860 fee, 1,250 ft. W and 216 ft. N of C sec. 29-9s-10w. R.U.
Union Sulphur Co. No. 861 fee, sec. 29-9s-10w. Drlg. sh. 1,100 ft.

Timballer Bay—Lafourche Parish

Gulf Oil Corp. No. 4 State, sec. 36-23-21e. Drlg. sh.&sd. 500 ft.

Valentine—Lafourche Parish

Wm. Helis No. 1 Valentine-Sugars, Inc sec. 2-17s-20e. T.D. 7,134 ft.; P.B. and sdtrkd.; drlg. heaving sh. 7,068 ft.
Pan American Prod. Co. No. 1 Ducos-Abriabat, sec. 10-17s-20e. Drlg. sd.&sh. 6,500 ft.
Pan American Prod. Co. No. 17 Harang sec. 9-17s-20e. T.D. 7,496 ft.; P.B. and sdtrkd.; drlg. sd. 6,375 ft.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 5 Manhattan Fruit Co., sec. 26-26s-30e. Top oil sd. 7,250 ft.; T.D. 7,300 ft.; P.B. 4,800 ft.; sdtrkd. at 4,813 ft.; cd. oil sd. 7,101-68 ft.; T.D. 7,290 ft.; 7-in. csg. 7,191 ft. perf. csg. 5,960-64 ft.; 10-min. D.S.T.; tstd. 120 ft. drlg. mud with oil odor; reperf. csg.

Tide Water Oil Co. No. 7 Manhattan Ld. & Fruit Co., sec. 26-21s-30e. Drlg. 650 ft.

Vinton—Calcasieu Parish

M. McLean No. 17 Gray, sec. 35-10s-12w. R.U.

J. V. Reddick No. 2 Vincent, sec. 34-10s-12w. Drlg. sd.&gvl. 1,483 ft.

Villa Platte—Evangeline Parish

Continental Oil Co. No. 1 Opelousas, St. Landry Securities Co., sec. 44-3s-2e. Drlg. sh. 7,260 ft.

Continental Oil Co. No. 1 T. E. Vidrine, sec. 47-3s-2e. Drlg. sh. 8,897 ft.

Welsh—Jeff Davis Parish

J. Massart No. 1 L. T. Mathews, sec. 27-9s-5w. T.D. 1,714 ft.; T.A.

Stanolind O. & G. Co. No. 2 Conover, sec. 20-9s-5w. R.U.

Woodlawn—Jeff Davis County

Union Sulphur Co. No. 2 Calcasieu Natl Bnk., sec. 12-9s-6w. T.D. 9,046 ft.; rng. 7-in. csg.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w T.D. 5,106 ft.; P.B. to approx. 500 ft.; T.D. 3,925 ft.; D.S. stuck.

Humble O. & R. Co. No. 1 Finch, sec. 22-10s-1e. 9⅝-in. csg. 7,474 ft.; cg. sdy. sh. 10,216 ft.

Avoyelles Parish

G. C. Koch et al No. 1 Kelone, sec. 21-2n-3e. 10¾-in. csg. 987 ft.; drlg. sh. 5,286 ft.

Beauregard Parish

Republic Prod. Co. No. 1 Lutcher-Moore Lbr. Co., sec. 10-13w-6s. 10¾-in. csg. 1,015 ft.; drlg. sh. 7,560 ft.

Calcasieu Parish

Sun Oil Co. No. 1 Lutcher-Moore Lbr. Co., sec. 1-8s-13w. Cg. hd. sh. 6,494 ft.

Wheeler Oil Corp. No. 2 Sch. Ld., sec. 16-9s-7w. 15½-in. csg. 46 ft.; S.D. 641 ft.

Cameron Parish

Humble O. & R. Co. No. 1-B Miami Corp., sec. 7-14s-6w. 13⅜-in. csg. 2,150 ft.; T.D. 9,270 ft.; P.B. 8,850 ft.

Superior Oil Co. No. 1 Sells, sec. 5-15s-8w. Drlg. sh. 856 ft.

Iberia Parish

Texas Co. No. 1 Bayless-Jones, sec. 58-12s-5e. Drlg. sh.&L. 7,094 ft.

Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. T.D. 9,101 ft.; P.B. and sdtrkd. at 5,788 ft.; T.D. 7,020 ft.; P.B. 6,385 ft.; to sdtrk.; T.D. 7,623 ft.; P.B. 7,176 ft.; to sdtrk.; T.D. 7,348 ft.; 9⅝-in. csg. 7,263 ft.; drlg. sd.&sh. 8,152 ft.

Jefferson Parish

Julius Szodomka No. 1 Carroll, sec. 12-12s-11e. T.D. 3,105 ft.

Lafayette Parish

Continental Oil Co. No. 1 Foreman, sec. 36-9s-3e. Drlg. sh. 9,580 ft.

Pointe Coupe Parish

Batchelor Oil Co. No. 1 Hackney, sec. 28-3s-8e. 20-in. csg. 117 ft.; 13⅜-in. csg. 2,170 ft.; drlg. sd.&L. 7,364 ft.

Rapides Parish

J. J. Farrell No. 1 W. P. Aertker, sec. 16-4n-1e. Drk.

St. Bernard Parish

Gulf Ref. Co. No. 3 State Lake, Twp. 12s-15e. 13⅜-in. csg. 1,558 ft.; drlg. sd.&sh. 3,722 ft.

St. James Parish

Continental Oil Co. No. 1 Realty Operators, sec. 17-12s-17e. 18⅝-in. csg. 302 ft.; 13⅜-in csg. 2,473 ft.

St. Landry Parish

Nixon & Toombs No. 1 Boagni, sec. 41-6s-4e. Drlg. sh. 7,205 ft.

Western Gulf Pet. Co. No. 1 St. Mary Ld. Co., sec. 7-8s-9e. R.U.

St. Martin Parish

Texas Co. No. 11 St. Martin Ld. Co., sec. 21-8s-7e. Bldg. drk.

St. Tammany Parish

Ozro B. Phillips No. 2 W. L. Stevenson, sec. 33-6s-10e. Drlg. sh. 1,710 ft.

Terrebonne Parish

Fohs Oil Co. No. 1 Buckley & Bourg, sec. 77-19s-17e. Drlg. sh. 10,675 ft.

Fohs Oil Co. No. 1 State, sec. 41-19s-19e. 18⅝-in. csg. 246 ft.; cd. sd. S.G. 6,894-6,915 ft.; T.D. 9,232 ft.; 9⅝-in. csg. 9,226 ft.; drlg. plug.

Vermilion Parish

Magnolia Pet. Co. No. 1 J. B. Ferguson, sec. 5-12s-2w. 13⅜-in. csg. 3,084 ft.; drlg. sdy. L. 4,128 ft.

Vernon Parish

W. T. Burton No. 1 Gulf Lbr. Co., sec. 32-1n-6w. Loc.

TEXAS

Week Ending April 16

GULF COAST FIELDS

Lockridge—Brazoria County

Gulf Oil Corp. No. 5 Carrie Baker, J. W. Hall Sur. No. 11. Drk.

Gulf Oil Corp. No. 4 Gibson, J. W. Hall Sur. Drlg. sd.&sh. 3,427 ft.

Hastings Field—Brazoria County

E. M. Hailey No. 2 Blumer, H.T.&B. Sur. No. 28. Drlg. sh. 1,185 ft.

Humble O. & R. Co. No. 1 P. O. Day and W. G. McDeed, H.T.&B. Sur. 37. Cg. sd. 6,070 ft.

Navarro Oil Co. et al No. 3-C W. F. Beers, Perry & Austin Sur. Drlg. sh. &L. 4,534 ft.

Producers Inv. Co. No. 5 C. H. Alexander, A.C.H.&B. Sur. No. 1. R.U.

Jay Simmon No. 5 C. H. Alexander, H. T.&B. Sur. 27. T.D. 6,082 ft.; rng. csg.

Stanolind O. & G. Co. No. 1 R. M. Froberg, R. A. Magee Sur. T.D. 6,080 ft.; rng. csg.

Stanolind O. & G. Co. No. 1 J. J. Miller, R. A. Magee Sur. R.U.

Stanolind O. & G. Co. No. 6 C. Moore, R. A. Magee Sur. Drlg. sh. 1,248 ft.

Old Ocean—Brazoria County

Harrison-Abercrombie No. 1 L. Augusburger, C. Breen Sur. Drlg. sh. 4,286 ft.

Harrison-Abercrombie No. 1 David Kaufman, C. Breen Sur. Drlg. sh. 850 ft.

Harrison & Abercrombie Oil Co. No. 1 Troyer and West Texas Abst. Co., C. Breen Sur. Drlg. sh. 9,992 ft.

West Columbia—Brazoria County

Adrian Moore No. 1 Gulf fee, Geo. Tennille Sur. R.U.

Frost and Dunnan No. 1 E. S. Parker, Geo. Tennille Sur. Bldg. drk.

Mike Hogg No. 2 Varner, W. Varner Lge. Drlg. sh. 3,835 ft.

Sterling O. & R. Co. No. 2 Munson, Geo. Tennille Sur. Drlg. sh.&L. 2,788 ft.

Texas Co. No. 20-A Abrams, George Tennille Sur. Cg. sd. 5,928 ft.

Texas Co. No. 21 Abrams, Geo. Tennille Sur. Drlg. sh.&L. 4,720 ft.

Texas Co. No. 22 Abrams, G. Tennille Sur. Drlg. sd.&L. 4,110 ft.

Texas Co. No. 7 J. G. Phillips, George Tennille Sur. T.D. 6,377 ft.; abd.

Wallace Oil Co. and others No. 1 Hargrove, G. Tennille Sur. T.D. 5,300 ft.; run. csg.

Sandy Point—Brazoria County

J. A. Fite No. 1 fee, Blk. 45, D. Talley Sur. T.D. 6,540 ft.; S.W. sd.; S.D.

Calhoun—Heyser—Victoria County

Blanco-Buchanan No. 10 Dunwoody, A. Sisneros Sur. Drk.

Geo. Echols No. 9 Bennett, J. E. Galban Sur. Drlg. sh. 3,530 ft.

Geo. Echols No. 12 W. H. Bennett, J. Galban Sur. Drk.

Gulf Oil Corp. No. 4-B C. P. Traylor, J. Galban Sur. Drk.

Gulf Ref. Co. No. 3 L. P. Schultz, J. E. Galban Sur. Drlg. 5,630 ft.

Magnolia Pet. Co. No. 7 Lander, J. E. Galban Sur. Drlg. sdy. sh. 5,725 ft.; no report.

Normandie Oil Co. No. 6 Cook, A. Sisneros Sur. T.D. 6,034 ft.; tstg.

Seaport Oil Corp. No. 1 Mae Diener. Drlg. sh. 4,930 ft.

Sinclair Prairie Oil Co. No. 11 W. H. Bennett, A. Sisneros Sur. T.D. 5,512 ft., sh.; run csg.

Sinclair Prairie Oil Co. No. 12 W. H. Bennett, A. Sisneros Sur. T.D. 5,747 ft.; I.P. 108 bbls.; ⅛-in. ck.

Cedar Bayou—Chambers County

Merit Oil Co. No. 1 Milam, C. Smith Sur. T.D. 6,800 ft.; abd.

Cedar Point Field—Chambers County

Humble O. & R. Co. No. 1 State, sec. 95. T.D. 6,042 ft.; S.W. sd. 5,938 ft.; rng. csg.

Standard Oil Co. of Texas and Salt Dome Oil Co. No. 2 State, sec. 119. 16-in. csg. 286 ft.; 10¾-in csg. 1,650 ft.

Seabreeze—Chambers County

Sun Oil Co. No. 1 R. J. Barrow, A. Yarbo Sur. Drlg. sh. 7,254 ft.

Sun Oil Co. No. 2 Sea Breeze Land Co., sec. 102, H.T.&B. Sur. R.U.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 Sanders, Reels Tropough Sur. T.D. 3,838 ft.; perf. csg. 3,827-32 ft.; flwd. 124 bbls. in 24 hrs.; ¼-in. ck.

Eureka—Harris County

Allamo Drlg. Co. No. 2 Laura Lackner, J. Reinerman Sur. Drlg. sh. 4,916 ft.

Jack Frazier et al No. 1 Varner Realty Co., J. Rinerman Sur. Drlg. sh. 7,550 ft.

Houston Oil Co. No. 2 Helberg-Lackner, J. Reinerman Sur. Drk.

Fairbanks—Harris County

H. C. Adams No. 1 J. P. Dawson, W. K. Hamblen Sur. T.D. 6,832 ft.; flwd. 57 bbls. in 2 hrs.; ¼-in. ck.

H. C. Adams No. 2 J. P. Dawson, W. K. Hamblen Sur. R.U.

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 L. M. Day, G. Ayers Sur. Cg. sh. 6,839 ft.

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 Foley, J. Clarkson Sur. Drk.

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 K. S. Silberg, G. Ayers Sur. 9⅝-in. csg. 1,212 ft.; drlg. sh. 3,027 ft.

Carroll Oil Co. No. 1 Ralph Johnston, J. N. Dement Sur. R.U.

Mortex Oil Co. No. 1 Johnson, Lawson Sur. R.U.

Mortex Oil Co. No. 1 H. E. Ley, J. Waugh Sur. 16-in. csg. 80 ft.; drlg. sh. 2,951 ft.

E. L. Smith and Ownby Drlg. Co., Geo. Ayers Sur. R.U.

E. L. Smith and Ownby Drlg. Co. No. 2 L. M. Meyers, J. Ayers Sur. T.D. 6,851 ft.; perf. csg. 6,842-50 ft.; flwd. 219 bbls. in 24 hrs.; ⅞-in. ck.

H. E. Williams No. 1-A A. Vaga, G. Williams Sur. 10¾-in. csg. 1,168 ft.; drlg. sh. 3,029 ft.

Friendswood—Harris County

Humble O. & R. Co. No. 7 Beamer, T. Choate Sur. R.U.

Humble O. & R. Co. No. 3 E. A. Grey, Perry & Austin Sur. T.D. 1,045 ft.; W.O.C.

Humble O. & R. Co. No. 2 B. H. Goodwin, W. K. Smith Sur. Loc.

Humble O. & R. Co. No. 1 Herman Hospital, T. Choate Sur. Drlg. sh. 3,943 ft.

Humble O. & R. Co. No. 1 J. L. Jones, Perry & Austin Sur. Drk.

Humble O. & R. Co. No. 1-B Keisling & Dixon, T. Choate Sur. T.D. 6,043 ft.; fsg.

Humble O. & R. Co. No. 4 J. J. Settegas, Perry & Austin Sur. Drlg. sh. 2,925 ft.

Humble O. & R. Co. No. 1 E. E. Watson. Drk.

Humble O. & R. Co. No. 1-B O. P. Woodburn, A. Whitlock Sur. Drlg. sh. 5,747 ft.

North Edna—Jackson County

Crown Central Oil Co. and H. J. Porter No. 2 Foust, Peter White Sur. Spd.

Clam Lake—Jefferson County

Shell Pet. Corp. No. 2 McFaddin, S. A. Pace Sur. Drlg. sh. 3,212 ft.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 4 J. H. Phelan, A. Stivers Sur. 18⅝-in. csg. 135 ft.

Hardin—Liberty County

Atlantic Ref. Co. No. 2 A. E. Cessna, H. B. Johnston Sur. T.D. 1,990 ft.; W.O.C.

Atlantic Ref. Co. No. 2 W. McMurtry H. B. Johnson Sur. T.D. 7,871 ft.; 7-in. csg. on bttm.; perf. csg.

Fohs Oil Co. No. 1 Johnson, H. B. Johnson Sur. T.D. 7,708½ ft.; perf. csg. 7,-617-27 ft.; flwg.; no ga.

Fohs Oil Co. No. 2 Johnson-Finley, H. B. Johnston Sur. Bldg. drk.

Gulf Oil Corp. No. 1 A. B. Tullos, H. B. Johnson Sur. Drlg. sh.&L. 3,580 ft.

Halliburton Oil Prod. Co. No. 2 Hanchy, H. B. Johnson Sur. T.D. 7,592 ft.; fsg.

Humble O. & R. Co. No. 1 Partlow, H. B. Johnson Sur. T.D. 7,578 ft.; tstg.

Shell Pet. Corp. No. 2 Hanchy, H. B. Johnson Sur. Drlg. sh. 6,067 ft.

Tide Water Associated Oil Co. No. 1 A Cessena, A. B. Hardin Sur. T.D. 7,630 ft.; run csg.

L. W. Wickes No. 3 Tullos, H. B. Johnson Sur. Drlg. sh. 7,319 ft.

Bay City—Matagorda County

Hamman Expln. Co. No. 2 Crooke, E Hall Sur. Top sd. 9,660 ft.; tstg.; no report.

Hamman Expln. Co. No. 2 G. M. Sloan, J. T. Belknap Sur. Drk.

McCrosky—Matagorda County

Pierce Est. No. 2 fee, I.&G.N. Sur. No. 7. 10¾-in. csg. 1,081 ft.

Palacios—Matagorda County

Bennett Prod. Co. No. 1 Foley Ld. Co., L. Goodwin Sur. Spd.

Sun Oil Co. No. 1 F. K. Robeson, L. Goodwin Sur. Drk.

Orange—Orange County

Gulf Oil Corp. No. 1 O. Duhon, Wm. Dyson Sur. Drlg. sdy. sh. 7,016 ft.

Ryan & Thompson No. 1 Walter-McGill, Wm. Dyson Sur. T.D. 6,123 ft.; rng. csg.; top oil sd. 6,112 ft.

Union Prod. Co. No. 2 Lutcher-Moore, Dyson Sur. 9⅝-in. csg. 5,162 ft.; top salt 7,125 ft.; T.D. 7,315 ft., salt; P.B. 6,000 ft.; perf. csg. 5,960-75 ft.; flwd. 33 B.P.H.

Segno—Polk County

Gulf Oil Corp. No. 2 Ragan, I.&G.N. Sur 15. 9⅝-in. csg. 5,587 ft.; 20-min. D.S.T. 8,146-61 ft.; tstd. 2,400 ft. P.L.O.; 140 lbs. press.; drlg. sh. 8,427 ft.

Humble O. & R. Co. No. 2 W. T. Carter, T. F. Pinkney Sur. Drlg. sh. 1,657 ft.

Humble O. & R. Co. No. 8-B Kirby, M. Victor Sur. T.D. 6,851 ft.; P.B. 5,050 ft.; to straighten hole.

Spurger—Tyler County

Republic Prod. Co.-Houston Oil Co. No. 9 Hurd, N. Hurd Sur. T.D. 5,884 ft.; S.D., high wtr.

GULF COAST WILDCATS

Brazoria County

Pure Oil Co. No. 1 Clemons State Farm, S. F. Austin 7½ Lge. 7⅝-in. csg. 1,955 ft.; T.D. 6,515 ft.; rmg.

Brazos County

Pet. Heat & Power Co. No. 1 Minnie C. Dunn, J. M. Barrera Sur. T.D. 803 ft.

Burleson County

Red Bank Oil Co. No. 1 Coffield, E. Sante Sur. Drlg. sh. 4,785 ft.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.

A. A. Cameron et al No. 1 White, Solmon Brill Sur. 10¾-in. csg. 1,500 ft.; T.D. 8,505 ft.; prep. to D.D.

Fort Bend County

Boyle et al No. 1 J. R. Spencer, Thomas Westfall Sur. T.D. 7,010 ft.; abd.

Galveston County

Sun Oil Co. No. 1 Atkins, Burrell Franks Sur. Bldg. drk.

Sun Oil Co. No. 1 Cade, A. Dickinson. 13⅜-in. csg. 2,218 ft.; cg. sh. 4,140 ft.

Harris County

Chapman Mineral No. 1 O. Harris, Wm. Jones Sur. Drlg. sh. 6,509 ft.

J. Frazier No. 1 Robert Gillespie, S. Contreras Sur. R.U.

W. S. Howell No. 1 Root, A. McCormick Sur. S.D. 2,807 ft.

O. W. Killam No. 1 J. J. Sweeney Est., G. Williams Sur. T.D. 6,736 ft.; 5½-in. csg. 6,634 ft.; perf. csg. 6,526-38 ft.; swbd. S.W.; abd.

West Prod. Co. No. 1A fee, Geo. B. McKinstry Sur. Drlg. 1,210 ft.

West Prod. Co. No. 1 G. W. Sowden, J. Lindsey Sur. Cd. oil sd. 5,850-92 ft.; T.D. 6,030 ft.; 7-in. csg. 6,005 ft.; perf. csg. 5,850-70 ft.; tstd. S.W.; no oil; reperfg. csg. 5,790-5,805 ft.; flwg. dist.; ⅞-in. ck.

Jasper County

John Mayo No. 1 Cartwright, Legrande Sur. Drk.

Jackson County

Humble O. & R. Co. No. 1 J. R. Davis, I.&G.N. Sur. No. 20, Blk. 150. Drk.

Magnolia Pet. Co. No. 1 West Ranch, Ramon Musquez Sur. R.U.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.; may abd.

Humble O. & R. Co. No. 1 State, Gulf of Mexico, sec. 8. Topped salt 1,450 ft.; T.D. 1,464 ft., salt; to D.D.

Matagorda County

J. K. Dorrance No. 1 M. Adamcik, I.&G. N. Sur. No. 1. Drlg. L. 7,148 ft.

Sun Oil Co. No. 1 Fred Robbins, C. H. Vandeveer Sur. T.D. 10,160 ft.; well tried to blow out; 7-in. csg. 10,150 ft.

Texas Co. No. 1 C. T. Kountze, P. J. Poole Sur. R.U.

Orange County

Texas Co. No. 1 H. J. Lutcher-Stark, Stephen Jett Sur. M.I.M.

Polk County

C. E. Gates No. 2 I. O. Jackson, J. W. Abbey Sur. Drk.

San Jacinto County

J. W. Oliphant No. 1 Gibbs, Chas. Memim Sur. R.U.

Trinity County

Boone Bros.-Jordan Drlg. Co. No. 1 Crauch, Joel Clapp Sur. Loc.

M. B. Gossage No. 1 C. H. Elliott, Joel Clapp Sur. Drk.

Waller County

David MacDaniel No. 1 H. C. Leverkuhn, Lacey Pearsall Sur. 10¾-in. csg. 832 ft.

Stanolind O. & G. Co. No. 1 Freeman, H.&T.C. Sur. No. 99. Drlg. sh. 2,636 ft.

S. W. TEXAS WILDCATS

Atascosa County

W. M. Allison No. 1 Nieschwietz, J. De La Garza Sur. 216. S.D. 250 ft.

G. D. Curly and R. E. Phalon No. 1 Henritta Kresch, J. C. Dierks Sur. 10-in. csg. 18 ft.

G. C. Richardson No. 1 Fisher, Beaty & Moulton Sur. 1013. Drk.

S.W.R. Corp. No. 1 Miller, J. Neill Sur. S.D. 435 ft.

Bastrop County

J. W. Bibb No. 1 Lentz, F. Wilkenson Sur. Top Austin Chalk with odor of oil 2,530 ft.; 5½-in. csg. 2,443 ft.; S.D. 2,550 ft.

R. C. Franklin No. 2 Yarrington, Jose Manuel Bangs Sur. S.D. 110 ft.

Humble O. & R. Co. No. 1 Hellsman, J. Cunningham Sur. 16-in. csg. 150 ft.; 10¾-in. csg. 1,599 ft.; cg. sh. 3,440 ft. drlg. Taylor 4,150 ft.

Western Gulf Pet. Co. No. 1 Green, Samuel Williams Sur. No. 4. Drlg. sh. 2,316 ft.

Bee County

Nami Herman No. 1 W. F. Fields, A. Bustillos Sur. T.D. 375 ft.; rng. csg.

Bexar County

Harrison et al No. 1 Schuwerth, Jose Antonio De La Garza Sur. T.D. 1,275 ft.; abd.

Luling O. & G. Co. No. 1 Russell, Fernando Rodriquez Sur. Drlg. 329 ft.

Joe H. Noake No. 1 Oppenheimer, W.

Miller Sur. No. 180. 10-in. csg. 17 ft.; S.D. 210 ft.; abd.

Caldwell County

Mac-Wag-Tree Oil Co. No. 1 Roberts, W. House Sur. 5½-in. csg. 2,517 ft.; T.D 2,713 ft.; swbd. well; flwd. sulfur wtr. P.B. to test.

Mencill Pet. Co. No. 1 J. Wallinger, Gedeon Pace Sur. S.D. 700 ft.

C. R. Richardson No. 1 Schowe, T. Maxwell Sur., Abst. 188. Drlg. sh. 1,016 ft. no report.

Cameron County

Saxet Prod. Co. No. 1 Port Isabel Irrig Co. Sur. 30. Drk.

E. B. Whittington No. 1 Gilmer, H. C. Williams Sur. No. 62. R.U.

Dimmitt County

Texas & Maryland Corp. No. 1 McKnight Blk. 13, sec. 23, Base of Austin Chalk 8,201 ft.; top Georgetown L. 8,120 ft 5½-in. csg. 7,094 ft.; drlg. L. 7,119 ft.

Duval County

Henry Brown No. 1 Guy Est., M. E. Gussett Sur. 394. Spd.

Corpus Christi Ref. Co. No. 1 Parr, B. S.&F. Sur. 303. Drlg. sh. 4,250 ft.

Frank Gravis No. 1 Megargal, J. Boyles Sur. 10-in. csg. 500 ft.; S.D.

Mills Bennet-Stanolind O. & G. Co. No. 1-A Yates, J. Poitevent Sur. No. 321. 10¾-in. csg. 196 ft.; cg. 3,027 ft.

Oliver Oil Co. No. 1 Lopez, R. Lopez Sur. 140. Drlg. sh. 1,230 ft.

Rowan & Hope No. 1 C. K. Gravis, sec 90. Top Pettus sd. 5,313 ft.; core sh. 5,387 ft.

V. G. Schimmel No. 5 Hagist, sec. 265, B.S.&F. Sur. T.D. 2,196 ft.; 7-in. csg. 2,190 ft.; pmpg. oil and S.W.; swbd. S.W.; abd.

G. Stratton No. 1 Afflerback, H. G. Foster Sur. T.D. 1,097 ft.; 7-in. csg. 1,084 ft.

Sun Oil Co. No. 1 Ross, A.B.&M. Sur. Cg. 2,410 ft.

P. T. Wright No. 1 Hyatt, Sweden Farm Lots Subd. R.U.

Edwards County

Evans & Love No. 1 Steve Brown, Blk. 6, G.W.T.&P. Sur. S.D. 6,250 ft.

Frio County

F. L. Thompson No. 1 Davis, G.B.&C.N. G. Sur. No. 1. Spd.

Goliad County

Windward Oil Co. No. 1 Dreier, B.S.&F Sur. No. 7. 10-in. csg. 1,000 ft.; T.D. 3,637 ft.; D.S.T. 3,632-37 ft.; blew out while drlg. 5,530 ft.; rng. wild; killed; B.P.; sdtrkd. 1,508 ft.; T.D. 3,815 ft.; 5½-in. csg. 3,815 ft.; perf. csg. 3,806-09 ft.; tstd. gas; 500 lbs. W.P.

Guadalupe County

Benstrasser No. 1 Eickenroht, A. Marra Esnaurrezar Sur. R.U.

E. A. Hearn et al No. 1 Dudelof, Jas. L Clements Sur. Abd. 745 ft.

N. G. Spiller No. 1 Wright Highsmith. 5½-in. csg. 2,012 ft.; T.D. 2,290 ft.; corrected; I.P. 10 bbls. oil, 4 bbls. wtr. per day; pmpg.

LEGAL

United States Department of the Interior, General Land Office, Washington, D. C. Notice is hereby given that the following lands and oil and gas deposits adjacent to or within the known geological structure of the West Red River and Middle Red River oil and gas fields, Tillman County, Oklahoma, are offered to the responsible qualified bidder of the highest bonus pursuant to Section 5 of the act of March 4, 1923 (42 Stat. 1448), and Section 17 of the act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate scale in the lease form shown in General Land Office Circular No. 1386: Unit No. 1, containing approximately 17 acres; Unit No. 2, containing approximately 24 acres; Unit No. 3, containing approximately 64 acres; and Unit No. 4, containing approximately 150 acres. Bids will be received on the separate units but two or more units awarded to the same purchaser may be included in a single lease. Specifications showing the location and description of the units may be obtained from the General Land Office, Washington, D. C., or the United States Geological Survey, Wichita Falls, Texas. The sale will be held in the office of the Petroleum Engineer, Geological Survey, Federal Building, Wichita Falls, Texas, at 12:00 noon on May 9, 1938. The successful bidder must deposit on the day of the sale a certified check on a solvent bank, or cash, for 1/5 of the amount of each bid, and file the showing of qualifications to receive a lease required by section 7 of Circular 1386. The remaining 4/5, together with the annual rental in advance, at the rate of $1 per acre, must be paid prior to the issuance of the lease. The bidders are warned against violations of the provisions of section 59 of the U. S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. The remaining lands and deposits in the bed of Red River extending from the north fork of the river to the 98th Meridian, west longitude, are subject to disposition in accordance with the Order of the Secretary of the Interior fixing April 1, 1938, as the opening date. Commissioner.

Hidalgo County

Gulf States Oil Co. No. 1 Cardenas, Juan Jose Balle Sur. 10¾-in. csg. 1,689 ft.; cg. sd. 7,940 ft.

Hidalgo Prod. Co. No. 1 Daskam Corp., Porc. 45, Blk. 34. Drlg. sh. 2,486 ft.

Jim Hogg County

F. S. Adams No. 1 Martinez, sec. 623. T.D. 3,015 ft.; oil sd.; 5⅛-in. csg. 3,005 ft.; tstg.

Humble O. & R. Co. No. 1 Anna Kelsy Bass, San Rafel Gr. Loc.

Jim Wells County

E. Calloway No. 1 Garcia, R. E. L. King Sur., sec. 54. T.D. 6,530 ft.; 7-in. csg. 6,140 ft.; P.B. 6,122 ft.; perf. csg. 5,950-6,000 ft.; swbg.; no show oil or gas.

Tom Graham Oil Co. No. 1 Martins, La-Vaca Gr. Core sh. 3,025 ft.

H. H. Howell et al No. 1 Lindsey & Reed, Lavaca Gr. Sur. T.D. 5,425 ft.; 7-in. csg. 5,421 ft.

Homer Presnall et al No. 1 Banker Mortgage Co., Jose Maria Garcia Sur. T.D. 3,497 ft.; P.B. 3,496 ft.; 7-in. csg. 3,497 ft.; perf. csg. 3,492-95 ft.; flwg. wash wtr.; no shows oil or S.W.; T.P. 500 lbs.; C.P. 1,075 lbs.; comp.; no ga.

Red Bank Oil Co. No. 1 Robt. Adams, Adams Bros. Sur. T.D. 3,650 ft.; abd.

Southern Minerals Corp. No. 2 Talbert, LaVaca Gr., Jose Maria Garcia Sur. Drk.

Karnes County

Randon Oil Co. No. 1 Karbach, A. M. Tompkins Sur. Cg. sh. 3,699 ft.

Kerr County

Edminston No. 1 Saul, Sur. 47. S.D. 55 ft.

Kleberg County

Pure Oil Co. et al No. 1 State Ld., Tr. 68, Laguna Madre Bay, Lse. No. 538. Dredging canal.

La Salle County

Finley S. Ewing No. 1 Pugh, E. L. Garrett Sur. Spd. and S.D.

Lee County

Eleousas Oil Co. No. 1 Sanders, J. Vin Roeder Sur. T.D. 4,398 ft.; rmg. to run lnr. and tst.

Live Oak County

Louis Franklin No. 1 Russell, John Hefferman Sur. T.D. 2,015 ft.; abd.

Hantho-Nelson No. 1 Geo. West, G. L. Haas Sur. R.U.

Harvey-Henderson No. 3 Nichols, Blk. 27. T.D. 1,509 ft.; abd.

Ray L. Martin No. 1 Adams, J. Buchannan Sur. Cg. 1,545 ft.

J. I. Newton No. 2 Geo. West, James Wright Sur. R.U.

V. G. Schimmel et al No. 1 Geo. West, G. L. Haas Sur. S.D. 210 ft.; prep. to D.D.

Transwestern Oil Co. No. 1 Stephens, C. F. Simmons Subd., sec. 74. R.U.

Unit Pet. Co. No. 1 Terrell, Mark Kellely Sur., Abst. 20. Drlg. sh. 4,120 ft.

McMullen County

Alabama Minerals No. 3 Gordon, A.B.& M. Sur. No. 127. Drlg. sh. 1,950 ft.

Duncan Drlg. Co. No. 1 Martin Henry, sec. 6. S.D. 707 ft.

Hamill and Smith No. 1 Franklin, Live Oak Co. Sch. Ld. Sur. No. 3. R.U.

Hear & Hall No. 1 Byrne, G. Pittich Sur. Cd. sd. show oil and gas 784-90 ft.; T.D. 975 ft.; sd.; rng. csg.

R. C. Lipscomb No. 1 Shiner, sec. 54, Shiner ranch. Drlg. 1,029 ft.

V. G. Schimmel No. 1 Jefferson O. & G. Co., C. P. Wright Sur. No. 92. Drk.

W. T. & D. Prod. Co. No. 1 Shiner, sec. 36 of Shumway Subd. Drlg. 325 ft.

Medina County

F. A. Brown No. 1 Senne, A.C.H.&B. Sur. 105. R.U.

J. W. Cromwell No. 1 J. W. Tondre, I. J. Rogers Sur. 676 ft.

D. K. J. Oil Co. No. 1 Burrell. T.D. 2,039 ft.; S.D. after swbg. dry.

F. J. Dykstra No. 2 McMenemy, G. Petty Sur. Core sh. 1,968 ft.

Ewing Oil Co. No. 1 Riff, Sur. 42. Cg. Serp.; good show oil; T.D. 716 ft.; 5⅛-in. csg. 542 ft.; pmpd. 80 bbls., 20-grav. oil in 36 hrs. through 1¼-in. tbg.; rng. larger tbg.

Gee Hayes et al No. 1 Conrad, J. Keppler Sur. Drlg. 250 ft.

Owens and Dean No. 1 Ben Haby, Albert Kempf Sur. No. 37. Drlg. 275 ft.

Taylor & Pepper No. 1 Saathoff, Peter Eichorn Sur. Drlg. 80 ft.; no report.

I. R. Trentman et al No. 1 Carle Merc. Co., V. A. Johnson Sur. T.D. 1,905 ft.; 7-in. csg. 1,835 ft.; csg. split; prep. to sqze. split with cmt.

M. L. Walker No. 1 Zuberbuilen, A. Bonamy Sur. Spd. and S.D.

Milam County

Texedo Oil Co. No. 1 Graham, Charles Cornea Sur. Logged S.O. 1,135-36 ft.; S.D. 1,760 ft.

Texedo Oil Co. No. 1 Paul Garves, C. Robertson Sur. S.D. 1,170 ft.

Refugio County

H. J. Porter et al No. 1 Lambert, J. Powers and Hewitson Sur. Drlg. sh. 5,620 ft.

San Patricio County

A. L. Bob No. 2 Green, T. T. Williamson Sur. S.D. 7,100 ft.

Conroe Drlg. Co. No. 1 Kune and Whittcliff, sec. 39, Coleman Fulton Pasture Lds. R.U.

Humble O. & R. Co. No. 1 Smith and Talbert, Lot 2, sec. 37. T.D. 4,836 ft.; rng. 7-in. csg.; P.B. 4,825 ft.; perf. csg. 4,814-15 ft.; made sqze. job.

Starr County

O. C. Borah No. 1 P. G. Garcia, Juan Salinas Sur. Drlg. sh. 620 ft.; no report.

O. C. Borah No. 2 Martinez, J. Salinas Sur. Drlg. 250 ft.; no report.

O. C. Borah No. 7 Martinez, Joaquin Salinas Sur. Drlg. 378 ft.; no report.

J. L. Collins No. 1 Francisco B. Guerra, Santa Cruz Gr. T.D. 6,609 ft.; well blew out; cutting out D.P.

Henshaw-Davis No. 1 Garcia, M. M. Garcia Sur. Loc.

Sioux Oil Co. No. 7 Ricaby, Porc. 83. R.U.

Travis County

I. Ripp No. 1 Thaxton, Santiago De Valle Gr. R.U.

Texas Empire Trading Co. No. 1 E. E. Jourdan, Santigo Del Valle Gr. Drk.

Victoria County

W. V. Bowles No. 2 Robertson, T. C. Burnham Sur. Loc.

Webb County

Anderson & Moore No. 1 Benavides, R. Benavides Sur. T.D. 2,930 ft.; abd.

C. C. Bonner No. 1 Lewis, W. P. Rutledge Sur. 460. Spd.

J. R. B. Moore No. 1 Masterson, C.C.S. D.&R.G.N.G. Sur. No. 17. R.U.

Willacy County

Magnolia Pet. Co. No. 1 Armendaiz, San Juan DeCarricitos Gr., Sh. 4. T.D. 9,643 ft.; 8⅝-in. csg. 9,640 ft.; perf. csg. 9,610-20 ft.; 30-min. D.S.T. tstd. 75 lbs. W.P.; sqzed. perf.

Salvieja Oil Corp. No. 2 Garcia Ld. Co. Blk. 118. T.D. 8,510 ft.; rng. Schlumberger.

Williamson County

Marion Aldridge No. 1 Kroschewsky. T.D. 1,033 ft.; 7-in. csg. 969 ft.; tstg.

Zapata County

R. B. Bryant No. 1 Flores, La. Huerta Sur. T.D. 1,556 ft.; stk. D.P.; jnkd. hole; skd. drk. 45 ft. north; drlg. 1,948 ft.

EAST TEXAS

(Border Counties)

Rodessa—Cass County

Union Prod. Co. No. 2 Carter et al, Bryant Sur. R.U.

Bowie County

King Oil Corp. No. 1 Watts, Geo. Brinlee Sur. Drlg. 4,052 ft.

Harrison County

Ark.-La. Gas Co. No. 1 C. M. Abney, E. Little Sur. T.D. 4,820 ft.; set 7-in. csg. 2,350 ft.; set csg. 4,836 ft.

Marion County—Rodessa

Ark.-La. Gas Co. No. 1 Hill, Gillespie Sur. Set 7-in. csg. 5,968 ft.; acdzd.; tstg.; T.D. 6,002 ft.

Arkansas-Louisiana Gas Co. No. 1 Hollands, Hanks Sur. Set 7-in. csg. 6,092 ft.; T.D. 6,131 ft.; acdzd.; tstg.

Ark.-La. Gas Co. No. 2 Holland, Hanks Sur. Cg. 6,059 ft.

Ark.-La. Gas Co. No. 1 Pitts, C. Lockhart Sur. Hill sd. 5,918-21 ft.; tstd. est. 30,000,000 ft. gas; 300 ft. of fluid in hole; top Dees 6,145 ft.; top Pettit L. 6,550 ft.; top Tr. Pk. 6,725 ft.; drlg. sh.&L. 7,070 ft.

Cable Tool Drlg. Co. No. 1 Henderson, U. Ewing Sur. Drlg. sh.&L. 3,503 ft.

Geo. Echols No. 2 Whitfield, Bennington Sur. Drlg. sh.&sd. 4,745 ft.

Gulf Oil Corp. No. 2 Grubaugh, Coy Sur. Drlg. L.&sh. 6,050 ft.

Gulf Oil Corp. No. 4-A Henderson, Bennington Sur. Drlg. sh.&L. 5,827 ft.

Heyser, Heard & Clardy No. 3-B Henderson, Ewing Sur. Drlg. sh. 2,660 ft.

Heyser, Heard & Clardy No. 4-B Henderson, U. Ewing Sur. Drlg. sh.&L. 3,777 ft.

Hollandsworth Drlg. Co. No. 1 Brantley, Bennington Sur. Set 9⅝-in. csg. 1,040 ft.; W.O.C.

Hollandsworth Drlg. Co. No. 1 Graham, Hanks Sur. Drlg. L. 5,020 ft.

Ohio Oil Co. No. 1 Mosley, Francis Sur. Drlg. L.&sh. 5,675 ft.

Phillips Pet. Co. No. 1 Beard, Bennington Sur. Drlg. sh. 2,845 ft.

Rice Drlg. Co. No. 1 Haynes, Coy Sur. Drlg. sh.&L. 5,337 ft.

Shell Pet. Corp. No. 1 Boykin, Gentry Sur. Drlg. sh.&L. 4,475 ft.

Shell Pet. Corp. No. 1 Goodrow, Hanks Sur. Drlg. L. 3,610 ft.

Shell Pet. Corp. No. 1 Schluter, W. Smith Sur. T.D. 6,064 ft.; set 5-in. csg. 6,060 ft.; W.O.C.

Shell Pet. Corp. No. 1 Whelan, Thos. Gillespie Sur. Set 5½-in. csg. 5,966 ft.; T.D. 5,993 ft.; swbd. S.O.; acdzd. with 2,000 gal.; flwd. 6 B.P.H.; ¼-in. ck., with gas-oil ratio of 18,000 to 1; re-cmtd. csg. 5,993 ft.; tstg.

Union Producing Co. No. 7 Hutchinson, Coy Sur. T.D. 6,110 ft.; set 5-in. 6,087 ft.

Panola County

Texas Co. No. 1 Claude Adams, T. Cox Sur. T.D. 5,940 ft.; set 9⅝-in. csg.; drlg. 7,021 ft.

WEST TEXAS WILDCATS

Andrews County

J. Donnelly et al No. 1 University, sec. 16, Blk. 14, University Sur. Drlg. 3,909 ft.

Rogers & Rogers No. 1 O. B. Holt, P.S.L. Sur. C.O. 4,541 ft.

Seaboard Oil Corp. No. 1 Munger-Nix, sec. 1, Blk. A-4, P.S.L. Sur. Rng. tbg. to test 4,520 ft.

Seaboard Oil Corp. No. 1 Thornberry, sec. 8, Blk. 42-A, P.S.L. Sur. R.U.M. 4,276 ft.

H. C. Wheeler No. 1 T. M. Gardner, sec. 15, Blk. A-35, P.S.L. Sur. Drlg. 4,430 ft.

Bailey County

Duffey & Etz No. 1 Enochs, Tract 66, League 182, Floyd Co. School Lands Sur. Drlg. 4,154 ft.

Brewster County

F. C. Dodson No. 1 Texas American Synd., sec. 66, Blk. 10, G.H.&S.A. Sur. W.O.C. 7,785 ft.

Cochran County

Helmerich & Payne No. 1 Westheimer & Daube, Lab. 14, Leg. 147. W.O.C. 215 ft.

Texas Co. No. 1 Mallett Ld. & Cattle Co., sec. 7, Blk. G, P.S.L. Sur. W.O. tools 4,802 ft.

Coke County

H. E. Ogden No. 1 Rawlins, sec. 390, Blk. B-21, U.R. 3,175 ft.

Barnett Pet. Co. No. 1 J. R. Mims, sec. 30 Blk. W, T.&P. Sur. S.D. 1,860 ft.

Crane County

Magnolia Pet. Co. No. 1 University, sec. 16, Blk. 30, University land, 3½ mi. NW of Church-Fields pool. Prep. deepen 3,253 ft.

Crockett County

W. L. Bradley et al No. 1 Hoover, sec. 1, Blk. 1. Tstg. 10 B.O.P.D.

Choate & Hogan No 1. University, sec. 17, Blk. 14, University Sur. Tstg. 1,627 ft.

Moore Bros. No. 1 Perner, sec. 37, Blk. 2, I.&G.N. Sur. Drlg. 9,086 ft.

Oldhausen No. 1 Owens, Carnam Sur. Abd. loc.

W. F. Yates No. 1 Hoover, sec. 6, blk. 1, G.C.&S.F. Sur. S.D. 125 ft.

Culberson County

Collins & Brewer No. 2 C. M. Caldwell, sec. 14, Blk. 42, P.S.L. Sur. Drlg. 310 ft.

Harry J. W. Nichaus No. 1 C. M. Caldwell, sec. 15, Blk. 109, P.S.L. Sur. U.R. 1,277 ft.

Dickens County

J. F. Marrisey No. 1 I. J. McMahan, sec. 319, Blk. 1, H.&G.N. Sur. Drlg. 2,548 ft.

Ector County

Stogner et al No. 1 Hendrick, sec. 4, Blk. 43, T.&P. Sur. Fsg. 1,190 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. Re-rng. 4-in. 3,571 ft.

Fisher County

Dibrell & Patton No. 1 J. B. Stribling, sec. 110, Blk. 3, H.&T.C. Sur. Cellar and pits.

Floyd County

Mills Bennett No. 1 T. Montgomery, F. J. Latham Sur., 6 mi. S of Floydada. Drlg. new hole 4,408 ft.

Gaines County

C. M. Cope et al No. 1 Riley, Blk. G, sec. 249, W.H.R.R. Sur. Drk.

Eastland Oil Co. No. 1 R. C. Dunbar, sec. 24, Blk. A-12, P.S.L. Sur. Tstg. 4,483 ft.

Finley & Cherry No. 1 P. W. Dalmont, sec. 6, Blk. A-21, P.S.L. Sur. Drlg. 3,460 ft.

M. B. K. Drlg. Co. No. 1 A. L. Wasson, sec. 52, Blk. AX, P.S.L. Sur. Drlg. 4,500 ft.

Garza County

Gulf Oil Corp. No. 1 Swanson, sec. 25, Blk. 2, H.&G.N. Sur. Drlg. 3,477 ft.

Glasscock County

O. B. Greathouse No. 1 Burns, sec. 221, Blk. 29, W.&N.W. Sur. M.I.S.T.

Hockley County

Gulf Oil Corp. No. 1 M. G. Gordon, sec. 12, Blk. X, P.S.L. Sur. Prep. P.B. 5,062 ft. C.O. est. 100 bbls. oil.

Gulf Oil Corp. No. 1 Mallett Ld. & Cattle Co., sec. 6, Blk. X, P.S.L. Sur. Tstg. 2½ gal. salt wtr. hr. 5,062 ft.

Honolulu Oil Co. No. 1-77, Labor 77, League 37, Zavalla Co. Sch. Lds. Drlg. 1,919 ft.

Howard County

Lockhart Oil Co. No. 1 Scott, sec. 86, Blk. 29, W.&N.W. Sur. W.O.C. 2,002 ft.

Moore Bros. No. 1 W. P. Edwards, sec. 44, Blk. 30, T.&P. Sur. Drlg. 2,650 ft.

Texas Co. No. 1 H. H. Wilkinson, sec. 32, Blk. 34, T.&P. Sur. Drlg. 2,752 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp 6 Drlg. cmt. 4,211 ft.

Haymon Krupp No. 1 Briggs, sec. 24, Blk. 73, Twp. 7, T.&P. Sur. U.R. 3,783 ft.

Jeff Davis County

Joiner Oil Corp. No. 1 Jones-Coffield. Drlg. 3,627 ft.

Kent County

Thad A. Bryant Jr. No. 1 Haggins et al, sec. 118, Blk. 1, H.&G.N. Sur. Bldg. drk.

Thad A. Bryant, Jr., No. 1 House, sec. 10, Blk. 1, H.&G.N. R.R. Sur., 6,000-ft. test. S.D. 200 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co.

sec. 151, H.E.&W.T. Sur. Prep. drill deeper 4,415 ft.

Menard County

Forest Dev. Co. No. 1 Corbell, J. H. Gibson Sur. No. 163. Drlg. 220 ft.
C. D. Haggerty No. 1 Callon, sec. 36, Jh. Franz Sur. S.D. 445 ft.
Hartzell-Nown & O'Hara No. 1 Wilhelm, sec. 24, Blk. A-1795, Indianola R.R. Sur. Drlg. 270 ft. last report.

Pecos County

Ed Falney No. 1 Trees, sec. 63, Blk. 8, H.&G.N. Sur. Fsg. 2,055 ft.
J. D. Kugle, Jr., No. 1 W. C. Jackson, sec. 120, Blk. 8, H.&G.N. Sur. S.D.R. 1,430 ft.
Carl S. Leidecker No. 1 Iowa Trust, sec. 73, Blk. 10, H.&G.N. Sur. Drlg. 260 ft.
Magnolia Pet. Co. No. 1 McKee. U.R. 4,464 ft.
E. R. Minshall et al No. 1 Haynie, sec. 28; Blk. 146, T.&St.L. Sur. M.I.M.
S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. Drlg. 7,212 ft.
Trans-Pecos Oil Co. No. 1 Gallagher. T.&P. Sur. Drlg. 1,940 ft. last report.
Trans-Pecos Oil Co. No. 3-A Papham, G.H.&S.A. Sur. U.R. 2,024 ft. last report.
Wilcox O. & G. Co. No. 1 Serf, sec. 27, Blk. 130, T.&St.L. Sur. Drlg. 4,480 ft.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk. 12, G.H.&S.A. Sur. Drlg. 4,950 ft.

Reeves County

Grisham Hunter Corp. & N. A. Grisham No. 1 Geo. Daniel, sec. 40, Blk. 58, T.&P. Sur. U.R. 1,398 ft.
Ohio Oil Co. No. 1 Papham, sec. 18, Blk 54, T.&P. Sur. Fsg. 2,380 ft.

Runnels County

E Z Oil Co. No. 1 B. Fletcher, E. C. Good Sur. T.D. 4,394 ft.; P.B. to 4,360 ft.; S.D.O.; C.O. 1,215 ft.
Stevens & Glober No. 1 Fowler, sec. 150 E.I.R.R. Sur. Drlg. 1,230 ft., last report.

Schleicher County

J. M. Cooper No. 2 B. Page, sec. 40, Blk. L, G.H.&S.A. Sur. S.D. 5,004 ft.
Tex-Tor Oil Corp. No. 1 Judkins & Spencer, C of SW¼ sec. 33, Blk. A, A.&B Sur. Drlg. 6,320 ft.

Scurry County

Coffield & Guthrie No. 1 E. E. Spears et al, sec. 130, Blk. 97, H.&T.C. Sur. M.I.M.
Robinson Drlg. Co. No. 1 Martin, sec. 147, H.&T.C. Sur. P.B. 2,500 ft.; S.D.
T. G. Shaw Oil Co. No. 1 First Natl. Bank. Fsg. 2,420 ft. last report.

Sterling County

Loffland Bros. & Moore Bros. No. 1 D. D. Parramore, sec. 23, Blk. 2, H.&T.C. Sur. Rng. 12½-in. 548 ft.
J. W. Sward No. 1 Brennand, sec. 107, Blk. 2, H.&T.C. Sur. S.D. 968 ft.

Stonewall County

Bert Fields No. 1 J. M. Lee, J. E. Pierson Sur. Spd.&S.D.
General Crude Oil Co. No. 1 J. D. Smith, sec. 371, Blk. 2, H.&T.C. Sur., 12 mi. N Rotan. Drlg. 3,550 ft.
Swanson & Parriott No. 1 H. T. Carlisle, sec. 293, Blk. D, H.&T.C. Sur. U.R. 3,557 ft.

Terrell County

D. & S. Oil Co. No. 1 Sam Bell. S.D. 960 ft., last report.

Terry County

L. E. Holtz No. 1 P. J. Ross, sec. 6, Blk. D-14, C.&M.R.R. Sur. Drlg. 3,657 ft.

Tom Green County

Humble O. & R. Co. No. 1 Lewis & Wardlaw, sec. 5, Blk. 17, H.&T.C. Sur. S.D.R. 7,382 ft.
Southern Cross Oil Co. No. 1 J. W. Wilson, sec. 30, Blk. H, A.B.&M. Sur. Loc.
Spinner No. 1 Reed, Mason Ferry Ranch Sur. Drlg. 3,960 ft.

Upton County

Flippen & Hancock No. 1 Shirk Est., sec. 7, Blk. 3, M.K.&T. Sur. Drlg. 2,135 ft.
Holland & Maverick No. 1 Halff, sec. 6, Blk. A, C.C.S.D.&R.G.N.G. Sur. S.D.O. 3,852 ft.
W. D. Riser et al No. 1 King Ranch Oil & Lignite Co., sec. 8, Blk. 3, M.K.&T. Sur. S.D. 730 ft.
Standard of Texas No. 1-10 University, Univ. Sur., Blk. 14, sec. 10. Drlg. 90 ft.

Val Verde County

J. F. Carter et al No. 1 Seller & Sons, sec. 34, Blk. A, I.&G.N. Sur. Spd. and S.D.

Ward County

Cities Service No. 2 Brandenburg, sec. 4, Blk. 32, H.&T.C. Sur. Prep. run tubing 2,096 ft., last report.
M. J. Delaney No. 1 J. E. Cooper, H.&T.C. Sur. Tstg. 2,092 ft.
J. E. Fitzpatrick et al No. 1 H. B. Carr sec. 125, Blk. 34, H.&T.C. Sur. S.D.R. 1,115 ft.
J. E. Fitzpatrick et al No. 1 F. K. Dyer, sec. 135, Blk. 34, H.&T.C. Sur. S.D.R. 2,500 ft.
Hoss & Downey No. 1 Mevers, sec. 17, Blk. 32, H.&T.C. Sur. C.O. 1,945 ft.
Hoss & Downey No. 1 Ross Avery, sec. 36, Blk. 1, H.&T.C. Sur. S.D. 1,940 ft.
A. E. Lynch No. 1-A Johnson, sec. 8 Blk. 32, H.&T.C. Sur. Rng. 7-in. 1,870 ft.
Mahree No. 1 Wilson, sec. 133, Blk. 34, H.&T.C. Sur. S.D. lost tools at 5,099 ft.
Patillo & Webster No. 1 Johnson. Tstg. 1,990 ft., last report.
O. E. Schkode No. 1 Boogher, sec. 1, Blk. 32, H.&T.C. Sur. Tstg. 278 B.O.P.D.
Texas Co. No. 1-F Univ., Univ. Sur., Blk. 16, sec. 15. Drlg.
L. F. White et al No. 1 Rector-Monroe, E cor. sec. 3, Blk. 1, W.&N.W. Sur. S.D. 4,710 ft.

Winkler County

Ed. L. Gelder No. 1 R. D. Kessler & F. Kessler, sec. 14, Blk. B-3, P.S.L. Sur. Drlg. 400 ft.

Yoakum County

Bahago & Bond Oil Corp. No. 1 J. L. West, sec. 607, Blk. D, J. H. Gibson Sur. S.D.O. 5,393 ft.
Gulf No. 1 J. C. Futch, sec. 796, Blk. D. J. H. Gibson Sur. C.O. 5,170 ft.
Gulf States Oil No. 1 Graham, sec. 267, Blk. 3, J. H. Gibson Sur. Drlg. 2,903 ft.
Helmrick & Payne No. 1 S. O'Dowd, sec. 896, Blk. D, J. H. Gibson Sur. Drlg. 4,537 ft.
Humble No. 1 Abilene State Bank, sec. 37, Blk. AX, P.S.L. Sur. Tstg. 5,005 ft.
Texas Co. No. 1 Walker, sec. 794, Blk. D El. 3,656 ft.; T.D. 5,180 ft.; comp. 906 B.O.P.D.

E. C. TEXAS WILDCATS

Anderson County

Tide Water-Seaboard No. 2 J. Reagan. J. Adams Sur. Tstg. 5 B.O.P.D., 5,282 ft., last report.

Angelina County

J. C. Bonham No. 1 Cameron Lbr. Co., E. Miller Sur., 3 mi. SE of Zavalla. S.D. 1,630 ft.
J. C. Bonham No. 3 Cameron Lbr. Co., E. Miller Sur., 3 mi. SE of Zavalla. Prep drill deeper, 621 ft.
Ginter Bros. No. 4 Copes Heirs, J. Morin Sur., 3 mi. S of Dibol. Clearing loc.
B. L. Hoffman No. 1 Jones, W. W. Hales Sur., 8 mi. SW of Huntington. Drlg. 30 ft.

Cherokee County

Bunn Drlg. Co. No. 1 C. Bounds, W. H. Walters Sur., 2½ mi. SE of Lone Star. Drlg. 3,560 ft.
Commerade Oil No. 1 J. M. King, W. Bartie Sur., 5 mi. W of Rusk. M.I.M.
J. G. Mayo et al No. 1 J. H. Bowlery, W. H. Walters Sur. Drlg. 2,900 ft., last report.

Dallas County

Markraley No. 1 R. S. Morris, C. Gibbs Sur., 2 mi. S of Grand Prairie. Loc.
Plaza Oil Co. No. 1 Davidson, Marchants Sur., 1 mi. NW of Seagoville. S.D. 2,257 ft.

Gregg County

Humble O. & R. Co. & Gulf O. Corp. No. 1 E. Robertson, M. Mann Sur., 2½ mi. SW of Longview Trinity test. El. 273 ft. Fsg. 9,603 ft.

Henderson County

Howard Pet. Co. No. 1 H. W. Barton. A J. Allen Sur. Drlg. 3,820 ft., last report.
Humble O. & R. Co. No. 1 Burns, J. G. Thompson Sur. Clearing loc.
Jones-Mallory No. 1 A. Mallory, T. S. Mitchell Sur., 6 mi. SW of Mabank. S.D. 107 ft.
Tyler & Smith No. 1 Phoenix Rlty. Co., A. L. Adams Sur., 4 mi. S of Mabank. Loc.

Houston County

Peyton Bros. No. 1 J. N. Daniels, J. M. Procella Sur., ½ mi. N of Procella. Cg. 5,585 ft.

Limestone County

J. S. Cosden, Jr. No. 1 J. J. Bower, J Breeding Sur., near Prairie Hill. Balling 602 ft.
Stanolind O. & G. Co. No. 1 T. Norris, in Thresher Sur., 5 mi. N of Kosse; 6,500-ft. test; elev. 528 ft. Prep. to abandon.

McLennan County

Chapman & Kahn No. 1 Carl Hartsman, B. C. Walters Sur., 1½ mi. S of McGregor. S.D. 1,326 ft.
Kilgore No. 1 J. M. Marrs, J. S. Rutland Sur., 2 mi. S of Bosque. S.D. 1,200 ft.

Navarro County

G. W. Gibson No. 2 Dr. J. H. Edgar, M. Meazel Sur., 3½ mi. S of Richland. S.D. 1,950 ft.
Natural Pet. Co. No. 1 Karen Brown, W. T. Turner Sur., 2 mi. E of Roane. S.D. 1,735 ft., last report.
Mrs. Jane Robinson No. 1 Fortson Bros. Eli Smith Sur., 5 mi. NE Corsicana Prep. cg. 2,628 ft.

Red River County

Walters et al No. 1 Phamplin, W. Moore Sur., 3 mi. SE of Kanawha in NW part of county. R.U.

Smith County

H. L. Hunt et al No. 1 S. H. Bradly, T. P. Payne Sur., 10 mi. E of Tyler at Chappel Hill. Drlg. 6,276 ft.

Titus County

Lee Umbernhour No. 1 J. M. Sykes, J. Mathews Sur., 1 mi. N of Winnsboro. D.&A. 3,888 ft.

Trinity County

Bilinoski et al No. 1 Trinity State Bnk., B. F. Wright Sur., 2 mi. S of Trinity. Drlg. 3,450 ft.
Boone & Jordan No. 1 U. S. Crouch, Joel Clapp Sur., 7 mi. N of Trinity. Drk.
Gassage et al No. 1 Mrs. C. H. Elliot, Joel Clapp Sur., 6½ mi. N of Trinity. Drk.

Upshur County

E. J. Dupree No. 1 W. A. Lawrence, R. Polly Sur., 4 mi. S of Gilmer. Drlg. 2,990 ft.
Tom Hunter and American Liberty No. J. P. Carter, J. H. Fields Sur. Drlg. 8,362 ft.

RANGER (CENTRAL TEXAS) DISTRICT

Callahan County

Joe Gallagher No. 1 W. T. Harris, 200 ft. from S line, 1,050 ft. from E line sec. 347, G. W. Denton Sur. 2,000-ft. test, 5 mi. N Oplin. M.I.M.
J. H. Howell No. 1 E. I. Vestal, 1,149 ft. E line, 1,000 ft. N line, Jesse Dyson Sur., 2 mi. NE Cross Plains, rotary to 4,000 ft. Surf. to 100 ft.; S.D. at 600 ft.
J. C. Jackson et al No. 1 Thompson, 2 mi S. Eula, sec. 30, B.B.B.&C. Sur. S.D. 1,803 ft.; drlg. 2,350 ft.
Wittmer Oil & Gas Properties, Inc., No. 1 R. D. Williams et al, 300 ft. from N line, 467 ft. from W line sec. 2,269, T.E.&L. Sur., 2 mi. NE Putnam, 4,500-ft. test. Set 12½-in. at 1,048 ft.; show oil 1,795-1,803 ft.; drlg. 1,965 ft.

Coleman County

S. M. Devine et al No. 1 Masterson, 2 mi. W of Burkett, Asa Wickson Sur. Drlg. 1,700 ft.
Garrett Oil Co. No. 1 W. S. Smith et al., 4 mi. SE Coleman, J. Thiele Sur. 2,300-ft. test.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. I. Terry, Desdemona pool, N. H. Kuykendall Sur. S.O. in Ellenburger; 5 gal. sulfur and salt water on D.S. test 4,917 ft.; tstg. 4,955 ft.

Eastland County

G. D. Chastain et al No. 1 Weddington, 4 mi. N. Cisco, sec. 496, S.P.R.R. Sur. T.D. 4,079 ft.; plugging back.
Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test. Drk.
Hayner, Reaves & Hose No. 1 P. L. Larkin, 3 mi. NW Rising Star, 912 ft. from W line, 546 ft. from S line, NW¼, sec. 40-2, E.T.R.R. Sur. Drlg. 1,800 ft.
Neil A. Moore No. 7 Holcomb Heirs, 970 ft. from W line and 600 ft. from N line, SW¼ 1-4, H.&T.C. Sur. Loc.

Fisher County

Forest Dev. Corp. & Daube No. 1 L. G. Bennett, 660 ft. from N & E lines, sec. 51-3, H.&T.C. Sur. Rotary to 4,500 ft.; 3 mi. SW of Rotan.
Owens-Snebold & A. C. Varner No. 1 J. H. Milsap, 3,500-ft. wildcat, 2 mi. NW McCaulley. 330 SL 330 WL, sec. 61-2, H.&T.C. Sur. Drlg. 1,230 ft.
Tom C. Patton, Inc. No. 1 John B. Stribling, 660 ft. from S and E lines, sec. 110-3, H.&T.C. Sur. Pits; 4,500-ft. test.
Shell Pet. Corp. Corp. No. 1 J. H. Vaughn, 330 ft. from N and E lines, sec. 20s-3, H.&T.C. Sur., 4,000-ft. test.

Haskell County

Fain-McGaha Oil Corp. No. 1 T. G. Hendrick, C W½ sec. 104, Indianola Ry. Sur. Set 150 ft. of 12½-in. S.S.G. 1,620-30 ft.; U.R. 8-in. to 1,670 ft.
J. W. and A. E. McMillan No. 1 A. E. Pardue, 440 ft. from N and W lines, S½ M. Collum Sur. No. 4 A-685. Rotary to 3,500 ft.; drlg. 900 ft.

Jones County

Brown Eagle & C. J. Kleiner No. 1 Sullivan Heirs, 330 ft. S&E of 200-ac. tract in S. Andrews Sur. 191. Loc.
H. G. Daniels & Dale H. Dorn No. 1 F. T. Moore, 220 ft. from W line, 330 ft. from S line, Moore 115 ac. in John Winter Sur. 138. U.R. 6-in. to 2,283 ft., T.D.
W. W. Fondren No. 1 Cox-Manley, 330 ft. from S line and 330 ft. W of C of S line of C. B. Sheppard Sur. 70. Fsg. 1,888 ft.
Mack Hayes and Montour Oil Co. No. 1 Chittenden, 7 mi. SE Hamlin, Subd. 18, McMullen & McGloin Sur. 337. Drlg. 3,000 ft.
L. A. Hedrick No. 1 W. D. Baker, 220 ft. from N&W lines 3½ NE¼ sec. 36-O.A.L. Drlg. 750 ft.
Humble No. 1 I. N. Irwin, 330 ft. from S and W lines sec. 48-18, T.&P. Sur., 1½ mi. E Noodle Creek pool. Cored sat. 2,550-67½ ft.; set 6-in. 2,550 ft.; swabbed 18 B.O. and 72 B.W. in 3 hrs.; plugged back cement; rigging spudder.
Humble No. 1 R. B. Spencer, 330 ft. from S and E lines, NE¼ sec. 195, B.B.B.&C. Sur., West Avoca outpost. Drlg. 3,050 ft.
Iron Mountain No. 1 D. J. Herbst, 5 mi. E Hamlin, 330 ft. from N and E Sub. 18, Austin Williams Sur. 339. Set 10-in 2,245 ft.; wtr. 2,900-05 ft., T.D.; U.R. 8-in.
F. M. Loop No. 1 W. T. Young, 330 ft. from N line, 253 ft. from E. L. Young 276-ac., D. Bustillos Sur. 189. Loc.
F. W. Martin No. 1 B. N. Herndon, 330 ft. from S and W of NW sec. 1, M.E.&P. Sur. Collapsed 8-in. at 2,567 ft.; clean out to deepen.
F. W. Merrick et al No. 1 C. A. Cox, cent. Cox 119-ac. tr., J. H. Hughes Sur. No. 201. Drlg. 1,858 ft.
B. H. Roth No. 1 D. A. Kinney, 4,000-ft. test, 330 ft. from S and E of NW sec. 7-4, H.&T.C. Sur. Drlg. 3,380 ft.
Shaheen Oil Co. and Big Six No. 1 P. L. Telford, 220 ft. N and W lines, E½ SW¼ sec. 49-15, T.&P. Sur. Drlg. 1,490 ft.
Jay Simmons No. 1 W. T. Young, 302 ft. from S, 342 ft. from E, 37½-a. lease, D. Bustillos Sur. 189. Drlg. 840 ft.
Stanton & Miller No. 1 Gaither, 4½ mi. N of Anson, sec. 38, B.B.B.&C. Sur. S.D. 2,180 ft.
Joe A. Worsham et al No. 1 J. H. Commons, 330 ft. from E line, S½ E 80-ac., Subdiv. 8, A. W. Hill Sur. No. 4. Drlg. 2,250 ft.

Nolan County

Hantho-Nelson, Inc., No. 1 J. H. Withers, C SW¼ sec. 65-21, T.&P. Sur. Wildcat to drill 4,000 ft. Spd. to 200 ft. W.O. rotary.

Palo Pinto County

W. H. Clement No. 1 Federal Life Ins. Co., 2 mi. W Mineral Wells, sec. 51, T.&P. Sur., Blk. A (E of B). Drlg. 1,710 ft.

Shackelford County

Danciger No. 3 J. E. McCown, 300 ft. from N and E lines, S½ SE¼ sec. 158, B.B.B. &C. Sur. Drlg. 650 ft.
Joe DeGrazier No. 1 Harbough, E cen. part of county, sec. 1,563, T.E.&L. Sur. 4,500-ft. test; H.F.W. 2,185-95; U.R. 8-in.
Forest Dev. Corp. No. 1 T. G. Hendrick, NW cor. of county, 2,600 ft. from N line and 4,300 ft. from W line of sec. 1, A.B.&M. Sur. Est. 15,000,000 ft. gas per day 1,603-17 ft.; gas 1,662-65 ft., incr. est. 4,000,000 ft., 1,680-85 ft.; est. 1,000,000 ft. 1,804-06 ft. and 1,810-15 ft.; S.S. oil and wtr. 1,864 ft.; inc. wtr. 1,880-82 ft.; set 6-in. to 2,620 ft.; wtr. 2,755 ft.; drlg. sh. 3,050 ft.
Ungren & Frazier No. 1 J. S. McKeever, 306 ft. from W line, 354 ft. from N line, NW¼ SW ¼ sec. 14-3, H.&T.C. Sur. 3,500-ft. test.; gas at 1,475 and 1,492 ft.; set 10-in. 1,539 ft.; drlg. ahead.

Stephens County

Danciger Oil Ref. Co. No. 1 Mrs. Aileen Copeland, 8 mi. SE Ivan, 1,196 ft. from E line and 350 ft. from S line of sec. 1, M.E.P.&P. Sur. P.B. to 4,130 ft.; prep to shoot sand.
Graham, Hafner, Lane & Inman No. 1 J. N. Yocum, 5 mi. SE of Frankell, 250 ft. from N and E lines of farm or approx. 2,525 ft. from E line and 1,400 ft. from S line of John R. Carter Sur. Trt. 1,000 gal acid 3,575-90 ft.; est. 25-50 bbls. per day; drlg. 3,455 ft.
I. C. Little No. 1 R. M. Rogers, NE¼ of county, 150 ft. from E line and 1,980 ft. from S line of sec. 28, T.&P. Sur., Blk. 5. Tstg. after 10,000-gal. acid 3,960-4,055 ft., 3,000,000 ft. gas; sulfur wtr. 4,490 ft., T.D.; testing gas at 3,837-41 ft.
Lone Star Gas Co. No. 5 R. W. Brooks, 400 ft. E and S of C of sec. 54-7, T.&P. Sur. Ellenburger test 2½ mi. N of Van Parmer pool. Drlg. 500 ft.
G. Willard Rich No. 1 J. W. Andrews, 330 ft. W line, 450 ft. S line, NW¼ sec. 39-7, T.&P. Sur. Set 12½-in. at 1,620 ft.; drlg. 2,150 ft.

Stonewall County

Bert Fields No. 1 R. P. Pierson, C of E 80-ac., E. A. & S. M. Lee Sur. Abst. 817. Loc.
General Crude Oil Co. No. 1 J. D. Smith, SW cor. county, 330 ft. from S and E lines of sec. 371, H.&T.C. Sur., Blk. 2. Set 13⅜-in. 2,119 ft.; set 10-in. at 3,508 ft.; cmt. 150 sacks; drlg. 3,685 ft.
F. B. Parriott No. 1 H. T. Carlile, 330 ft. from S line, 990 ft. from E line, SW¼ NE¼ sec. 293, Blk. D, H.&T.C. Sur., rotary to 5,500 ft., 6 mi. NW of Swenson. Set 8¼-in. at 3,345 ft.; cable drlg. 3,746 ft.

Taylor County

E. P. Campbell et al No. 1 McGee & Manley, 330 ft. from N, 750 ft. from E lines, SW¼ sec. 22-16, T.&P. Sur. Abd. dry 2,771 ft., T.D.

LEGAL

U. S. Department of the Interior, U. S. Land Office, Cheyenne, Wyoming. Notice is hereby given that the following lands are offered to the responsible qualified bidder of the highest bonus per acre for leasing, pursuant to section 17 of the act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674) at the royalty rate scale in the lease form shown in circular 1386: Unit No. 1, lot 4 (NW¼ NW¼) Sec. 2, 40.15 acres; Unit No. 2, SW¼ SW¼ Sec. 4, 40 acres; and Unit No. 3, NW¼ SW¼ Sec. 8, 40 acres, all in T. 35 N., R. 65 W., 6th P.M., in the Lance Creek oil and gas field, Wyoming. Bids will be received on the separate units but two or more units awarded to the same purchaser may be included in a single lease. Said units will be offered for sale at public auction at this office at 10:00 A.M. on May 16, 1938. The successful bidder must deposit on the date of the sale, with the Register of the Cheyenne land office, certified check on a solvent bank, or cash, for one-fifth of the amount bid by him, and file the showing of qualifications to receive a lease, required by section 7 of General Land Office circular 1386. The remaining four-fifths, together with the annual rental in advance, at the rate of $1 per acre, must be paid prior to the issuance of the lease. The bidders are warned against violations of the provisions of section 59 of the U. S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior. Register.

Bert Fields et al No. 1 Sears, sec. 223, Blk. 64, H.&T.C. Sur. Drlg. 3,429 ft.
Wichita Prod. Co. No. 1 J. H. Parramore, 592 ft. from E line, 400 ft. from S line, SW¼ sec. 81-14, T.&P. Sur. Drlg. 1,600 ft.

Throckmorton County

Jones & Stasney No. 1 C. T. Brockman, 330 ft. S line, 330 E line sec. 95, Comanche Indian Sur. Fsg. 700 ft.
Morris & Spoonts No. 1 Alden Bros., NW cor. county, 1,350 ft. from E line and 5,210 ft. from S line of Raymond Sanches Sur. A-248. Drlg. 1,178 ft.
White & Duncan No. 1 Reynolds Cattle Co., 330 ft. from S and W lines, NE¼ sec. 83, Comanche Indian Reservation. Drlg. 1,070 ft.
Henry Zweifel No. 1 J. H. Lee, 4 mi. NE of Woodson, 930 ft. from E line and 2,011 ft. from S line of J. A. George Sur. Cg. 2,990 ft.

NORTH TEXAS WILDCATS

Archer County

Adams O. & G. Co. No. 1 C. Moer, sec. 21, C.&P. Sur., Blk. 3. R.U.R.
Burns & Omohundro No. 1 Dr. A. B. Edwards, Blk. 44, L. P. Hunt Subd., 5,300-ft. test. Loc.
Camp Drlg. Co. No. 1 H. Harmel, sec. 2,460, T.E.&L. Sur., 4,000-ft. test. Drk.
Fain-McGaha Oil Corp. No. 1 R. W. Fuller, Blk. 1, H.&T.C. Sur., 6,000-ft. test. R. U.R.
Hines & Hancock No. 1 J. L. Anderson, Blk. 23, Anderson ranch, 4,000-ft. test. Drk.
Kilgore-Luginbyhl & Johnson No. 1 Ford, T. M. Cecil Sur. A-982. 4,500-ft. test; S.D. 4,067 ft.
Lacreta Pet. Co. No. 1 L. H. Farmer, W. C. Winters Sur. A-663, 4,000-ft. test. Drk.
Reno Oil Co. No. 10 H. Wilmut A, sec. 4, S.P.R.R. Sur. A-1044. Drlg. 3,200 ft.
Shappell Oil Co. No. 1 Grace Bell, Blk. 27, Clark & Plumb Sur., 3,700-ft. test. Loc.
C. W. Snoddy No. 1 Jones, T. Freeman Sur. A-134. Drlg. 3,910 ft.
Thurman & Lipscomb No. 1 L. F. Wilson, Blk. 22, A.T.N.C.L. Sur., 4,000-ft. test. Drlg. 1,902 ft.

Baylor County

D. S. Kelly No. 1 W. T. Waggoner, sec. 54, T.&N.O. Sur. Drlg. 1,780 ft.
Riddels, Pipes & Holcomb No. 1 W. H. Nichols, Jr., sec. 117, B.B.B.&C. Sur. A-85. Loc.

Clay County

Walter Gant No. 1 Bryant Edwards, S. C. Beldon Sur. A-12, 6,000-ft. test. Drlg. 4,710 ft.
Healdton O. & G. Co. No. 1 Wallace, Belcher Subd. Drlg. 5,600 ft.
W. P. Luse No. 1 Hapgood, sec. 68, Marion Co. Sch. Ld. 5,000-ft. test; drlg. 4,100 ft.
Joe Rogers No. 1 C. P. Davis, Blk. 6, Montague Co. School Land Sur. A-397, 4,500-ft. test. Spdg.
Wood Pet. & Roy. Corp. No. 1 I. H. Kempner, Blk. 44, Bosque Co. Sch. Ld. Sur. A-10. S.D. 2,020 ft.

Cooke County

H. L. Nutting et al No. 1 H. P. Ware, A.C.C. Bailey Sur. A-44. T.D. 2,230 ft.; tstd. water and rainbow 2,216-19 ft.; S.D.O.
Sinclair Prairie Oil Co. No. 1 J. M. Best, T. Toby Sur. A-1054. Drlg. 2,830 ft.
Sunset Oil Co. No. 1 J. T. Donald, S.P. R.R. Sur. A-971. 3,500-ft. test; drlg. 2,470 ft.

Denton County

B. Lee No. 1-B Boyles, S. Ross Sur. A-112. Drlg. 2,320 ft.

Foard County

Texas Co. No. 18 Johnson, sec. 37, S.P. R.R. Sur. Drlg. 3,000 ft.

Jack County

Noah Daves No. 1 K. D. Baker, sec. 2709, T.E.&L. Sur., 4,000-ft. test. Spdg.
Harper Pet. Co. 1 Mary E. Norman. A. Pearson Sur. A-1304. Drlg. 1,490 ft.
R. S. Luke No. 1 H. M. Simpson, J. W. Abbey Sur. A-11, 3,250-ft. test. Drlg. 1,600 ft.
Taubert & McKee No. 1 R. H. Eatherley, G. C. Stanley Sur. A-1653. Drlg. 1,640 ft.

Knox County

King & McCurdy No. 1 N. Rogers, sec. 3, H.T.&B. Sur., 4,000-ft. test. Drlg. 1,280 ft.

Montague County

H. H. Powell No. 1 Arch Durham, W. J. Wagoner Sur. A-936. S.D. 822 ft.
E. J. Ruwaldt No. 1 J. A. Hoffman, T. Puckett Sur. A-607. Drlg. 1,200 ft.
W. Sorrell et al No. 1 J. E. Walthall, Sam H. Smith Sur. A-662. Drlg. 3,300 ft.

Wichita County

Bolin & Whittington No. 1 Waggoner Bros., sec. 21, H.&T.C. Sur. Sdy. L. 3,840-62 ft.; 6⅝-in. 3,851 ft.; flowed & swabbed 40 bbls. per hr. and S.D. for R.R. com. test.
C. W. Boller No. 1 S. Y. Collins, Charles Roberts Sur. A-540. 6⅝-in. 3,855 ft.; brkn. sdy. L. and O.S. 3,860-3,900 ft.; W.O.C.
M. T. Flanagan No. 1 Texas L. & M. Co., J. McColl Sur. A-194. 6⅝-in. 3,920 ft.; tstg. S.S.O. 4,050-60 ft.
E. J. Stump No. 1 M. P. Bishop, L. Netherly Sur. A-240 S.D.O.: S.L. 3,885-3,997 ft.; shot 350 qts. 3,884-3,970 ft.; flowed 10 min. after shot and bridged; testing.
E. J. Stump No. 1 F. C. Dodson, J. Deck Sur. A-52. Drk.

Wilbarger County

Loyd H. Brown No. 1 W. T. Waggoner, sec. 33, Blk. 6, H.&T.C. Sur. Running 5½-in. csg. to test L.S.O. 4,237-38 ft.
N. Gilbert No. 1 McGill, sec. 3, Blk. 9, H.&T.C. Sur. Drlg. 3,870 ft.
Jack Kadane No. 1 W. T. Waggoner, sec. 20, H.&T.C. Sur., Blk. 5. Drlg. 3,900 ft.
E. C. Lawson No. 1 Ruitsch, sec. 21, H. &T.C. Sur., Blk. 9. Drlg. 2,610 ft.
Phillips Pet. Co. No. 1 W. T. Waggoner "Barger, sec. 11. H.&T.C. Sur., Blk. 14. 6⅝-in. 3,440 ft.; S.S.O. 3,475-94 ft.; test H.F.W.
Republic Nat. Gas Co. No. 1 W. T. Waggoner, sec. 2, H.&T.C. Sur., Blk. 4, 4,000-ft. test; spudded.

Young County

Cosden Oil Co. No. 1 Price, Y.C.S.L. Sur. No. A-1285. Drlg. 1,035 ft.
Cosden Pet. Corp. No. 1 D. R. Sewell B, J. Bray Sur. A-1949. Drk.
Howard Pet. Co. No. 1 G. R. Stewart, sec. 84, C.S.L. Sur. Drlg. 5,120 ft.
Danciger O. & R. Co. No. 1 H. C. Shanafelt, sec. 11, A.B.&M. Sur. A-1369. Drlg. 1,300 ft.
Kadane-Griffith No. 1 Sanders, sec. 1989, T.E.&L. Sur. 6⅝-in. 4,210 ft.; W.O.C.
A. N. Munhall No. 1 Ed Johnson, A. McLennan Sur. A-185. Drlg. 3,658 ft.

Canadian Fields

(Continued from Page 104)

Petroleums No. 5, LSD 1, is below 5,411 feet, after getting the grit beds at 5,368 feet.

In section 17-18-2w5, Sundance Royalties No. 1, LSD 9, is below 6,573 feet.

New Tests Planned

In West Central Turner Valley, Royalite Oil Co. No. 33 will be drilled in LSD 2, section 5-19-2w5. Location offsets Royalite Oil Co. No. 28 producer immediately to the north.

The Brown, Moyer & Brown interests of Calgary, with three wells drilling and one testing production, is extending its operations farther into the south end of the field. Brown No. 5 will be drilled in LSD 12, section 16-18-2w5, between the Sundance and Frontier wells. The Brown interests have also taken over Mid-Royal Oils No. 2, LSD 3, section 9-18-2w5, standing since last fall at 100 feet. Cable tools will carry the hole to 3,500 feet, after which a rotary outfit will complete the well. The Brown, Moyer & Brown interests have acquired 40 acres from Mid-Royal Oils and a similar acreage in LSD 4 from Alturner Oils, as well as 320 acres comprising LSDs 1, 3, 4, 8, 9, 10, 15 and 16, section 5-18-2w5, from the Soturn, Graham, Webster and Harvie interests, which held subleases from Calgary & Edmonton Corp. Additional wells will be started on this acreage as equipment becomes available.

In section 16-17-2w5, Firth Petroleums No. 1, LSD 6, is rigging cable tools for a test 3 miles south of Davies Petroleums No. 3, and 6½ miles due south of the nearest producer.

West Texas Fields

(Continued from Page 95)

bbls. Gulf Oil Corp. No. 100 Hutchins, 2,540-2,750 feet. 1,827 bbls. Lindsay & Bolin No. 2-B Wallis, 2,480-2,542 feet. 25 bbls. Patillo & Webster No. 1 Johnson, 1,935-90 feet, 60 bbls. States Oil Corp. No. 1 H. S. Spencer, dry and abandoned at 2,775 feet.

Winkler County

Bert Fields No. 5-B Pure-Cowden, 2,922-97 feet, 1,501 bbls. Magnolia Petroleum Co. No. 145 Walton, 2,830-2,948 feet, 1,109 bbls. Skelly Oil Co. No. 20 Halley, 2,750-3,145 feet, 475 bbls. Stanolind Oil & Gas Co. No. 4 Cowden, 2,415-2,715 feet, 69,000,000 feet.

Yoakum County

Denver Production Co. No. 6 Whittenberg, 4,776-5,017 feet, 401 bbls. Texas Co. No. 1 Bennett, 5,099-5,260 feet, 906 bbls.

CENTRAL TEXAS COMPLETIONS

Shackelford County

Kittery Oil Co. No. 7 Annie Eaheart, 22 bbls. per day after 10-quart shot in sand at 812-23 feet, total depth. H. P. Key and T. W. Lee No. 5 Diller, dry at 529 feet, total depth. Poly Oil Corp. No. 13 Spears, 30 bbls. per day from sand at 724-25 feet, total depth.

Taylor County

E. P. Campbell No. 1 McGee & James, dry at 2,771 feet, total depth.

Throckmorton County

A. B. Swain No. 1 Bill McKeichan, dry at 726 feet, total depth. Bearman Oil Co. No. 9-C Susie Tuton, dry at 736 feet, total depth.

Callahan County

Charles H. Lewis No. 2 A. W. Warren, dry at 345 feet, total depth.

Jones County

Thomas D. Humphrey No. 1 N. D. Newton, dry at 2,250 feet, total depth. Danciger Oil & Refineries No. 1 Fain-McGaha fee, flowed 328 bbls. after 40-quart shot in sand at 1,928-52 feet, total depth.

PANHANDLE COMPLETIONS

(24-hour gauges)

Gray County

Smith Brothers No. 2 Castleberry, 3,240-92 feet, 692 bbls. Robert Watchorn No. 2 Saunders, 2,945-80 feet, 477 bbls.

Hutchinson County

Phillips Petroleum Co. No. 16 Perkins, 2,830-2,980 feet, 243 bbls.

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	$.70	$.70	$.70	...	...	$.70	...
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	...
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.88	1.01	.98	.90	.83	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	...
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	...
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	...
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	...
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	...
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	$1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	...
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	...
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.25	...	1.29	...	...	...	...	...	1.27	...	...
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.29	...	1.33	...	...	...	...	...	1.31	...	...
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.32	...	1.37	...	...	...	...	...	1.35	...	...
38-38.9	...	...	...	...	...	...	...	1.56	...	...	...	...	...	1.36	...	1.42	...	...	...	...	...	1.39	...	...
39-39.9	...	...	...	...	...	...	...	1.61	...	...	...	...	...	1.40	...	...	...	...	...	...	...	1.43	...	...
40-40.9	...	...	...	...	...	...	...	1.66	...	...	...	...	...	1.43	...	...	...	...	...	...	...	...	...	...

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1938 High	1938 Low	Week ending Apr. 16 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
72½	57	1,400	66½	61½	66½	Amerada Corp.	788,675	N.P.	50cQ	4-30-38	$2.00	114⅞	51½	125½	75
24	17¾	4,800	21¾	19½	21½	Atlantic Refining	2,663,999	$25	25cQ	3-15-38	1.00	37	18	35⅛	26⅝
19	12½	6,600	17⅝	14⅝	17⅝	Barber Co.	387,149	$10	75c	12-16-37	1.00	43⅜	10⅛	38½	21
16⅜	10⅛	10,000	14¼	12⅝	14¼	Barnsdall Oil Co.	2,250,344	$5	25cQ	5-2-38	1.00	35¼	10	28¼	14⅛
10½	7	28,300	9⅝	8¾	9½	Consolidated Oil Corp.	13,919,417	N.P.	20cQ	5-14-38	.90	17⅞	7	17¼	11⅛
34⅜	21¼	8,000	30	26	29½	Continental Oil of Delaware	4,682,583	$5	25cQ	3-31-38	1.50	49	24	44⅞	28⅛
8⅞	5	12,200	7½	6⅜	7⅜	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	17⅝	4¾	13⅞	6⅜
22¾	12¼	4,600	18¾	16½	18¾	Mid-Continent Petroleum	1,855,912	$10	25c	6-1-38	1.50	35⅜	14	30⅞	17¼
17¾	11	600	14¼	13¾	14¼	Mission Corporation	1,399,345	N.P.	25c	12-24-37	1.25	34	15	29⅞	16¾
23	14⅛	8,800	19¾	17½	19½	National Supply	382,591	$25	$2 pf.‡	12-22-37	(‡)	41⅜	17⅝	75½	19⅞
14⅞	10	12,700	13	11⅞	13	Ohio Oil Co.	6,563,377	N.P.	50cSA	12-15-37	1.00	22⅞	9	18	12⅛
15⅞	10¼	500	12¼	10½	12¼	Pacific Western Oil	1,000,000	N.P.	75c	12-15-37	.75	29¾	11¾	23½	11¾
9¼	7	100	7½	7½	7½	Pan American Pet. & Trans.	4,702,945	$5	$1 *	12-21-37	1.00	17⅛	7	20⅝	12¼
42½	27¼	15,400	37	33	37	Phillips Petroleum	4,449,052	N.P.	50cQ	3-1-38	2.75	64	30⅛	52⅜	38⅛
20	15	3,800	19⅛	17¼	19⅛	Plymouth Oil Co.	1,029,800	$5	35cQ	9-30-37	1.65	29⅞	13	27¾	11⅞
13½	8½	22,400	11⅝	10¼	11¼	Pure Oil Co.	3,281,120	N.P.	25c	12-1-37	.25	24⅜	8¾	27⅞	16
7⅞	5	12,900	6⅜	5½	6⅜	Richfield Oil Corp.	3,285,120	N.P.	25c	12-24-37	.25	6½	4⅛	..	..
27½	15½	3,700	22¼	18¾	22¼	Seaboard Oil of Delaware	1,224,283	N.P.	25cQ	3-15-38	1.00	54⅛	16	44	30½
18¼	10	5,800	14¾	12½	14¾	Shell Union Oil	13,070,625	N.P.	50c	12-20-37	1.00	34⅜	14⅞	28¼	14¾
34¾	18½	3,800	26	22½	25⅞	Skelly Oil	1,003,949	$15	50c	12-15-37	1.50	60⅝	26½	47⅜	19½
16⅜	10⅜	31,600	14½	13⅛	14⅜	Socony-Vacuum	31,151,071	$15	25c	3-15-38	.80	23¼	13	17½	12⅛
33⅞	25⅛	12,000	31½	27¾	31½	Standard Oil of California	13,014,754	N.P.	35cQ†	3-15-38	2.00	50	27⅛	47⅝	35
35½	24¾	8,400	31¼	28¾	31¼	Standard Oil (Indiana)	15,267,030	$25	25cQ	3-15-38	2.30	50	26½	48½	32¾
35½	32½	No sales	..	..	..	Standard Oil of Kansas	112,837	$10	$5	12-20-37	5.00	43	30⅝	31	25
54⅛	39¾	19,200	49⅝	46⅜	49¼	Standard Oil of New Jersey	25,856,081	$25	$1.25SA†	12-15-37	2.50	76	42	70⅜	51⅛
57⅞	45	100	47	47	47	Sun Oil	2,316,484	N.P.	25cQ	3-15-38	$1 & 8% Stk.	77½	44½	91	70
3⅜	1¾	8,600	2⅝	2¼	2⅝	Superior Oil Corp.	1,388,079	$1	....	....	....	7¾	1½	6¾	3
44⅞	32⅝	24,000	41⅝	38	41⅜	Texas Corp.	10,875,006	$25	50cQ	4-1-38	2.25	65⅛	34¾	55¼	28⅞
4⅞	2⅝	5,200	4	3½	4	Texas Gulf Producing Co.	888,135	N.P.	10c	12-23-37	.10	9⅝	2	8⅞	4⅜
10⅛	7	6,100	9¼	8⅛	9¼	Texas Pacific Coal & Oil	888,237	$10	10c	3-1-38	.40	16⅝	5⅜	15¼	7½
15½	10⅛	10,400	14¼	12¾	14⅛	Tide Water Associated	6,369,175	N.P.	25cQ	3-1-38	1.20	21⅝	13⅛	21¾	14¾
21⅝	17⅛	7,900	20½	18⅝	20½	Union Oil of California	4,666,270	$25	30cQ	2-10-38	1.40	28¼	17½	28½	20¾
23½	20	800	20¾	20⅛	20½	Union Tank Car Co.	1,200,000	N.P.	40cQ	3-1-38	1.60	31½	22	31⅝	22⅝
2¾	1⅝	700	2⅜	2⅛	2⅜	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	6¼	1¾	5¼	2⅜

*Payable in 3½% notes. †Includes extras. ‡One-tenth share $2 preferred stock.

New York Curb Exchange

1938 High	1938 Low	Week ending Apr. 16 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
9⅜	5	1,300	7	6½	7	American Republics Corp.	1,308,049	$10	30c	12-27-37	$0.40	10	6⅝	..	..
10¼	5¼	800	7	6	7	Bridgeport Machine Co.	260,000	N.P.	1.25	12-30-37	$2.00	21⅜	7	21	13¼
39	34	100	35	34	35	Buckeye Pipe Line Co.	200,000	$50	75cQ	3-15-38	3.75	51½	36	50	39¾
110	97	No sales	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-21-38	7.00	123	95½	124¾	105
2	1	29,400	1¼	1⅛	1¼	Cities Service	37,804,394	N.P.	....	6-1-32	....	5⅜	1½	7⅞	3
2⅜	1	1,600	1⅜	1¼	1⅜	Cosden Petroleum	399,687	$1	....	..	....	5½	1½	4½	1½
27½	17½	3,400	21⅞	19⅞	21⅞	Creole Petroleum	6,974,356	$5	50cSA†	12-15-37	1.00	38¾	20¼	39	19⅞
8¾	5½	200	6⅞	6⅞	6⅞	Darby Petroleum	351,390	$5	25cSA	1-15-38	.50	18⅝	6½	18⅛	9
3½	2	1,400	3¼	2⅝	3¼	Derby Oil & Refining	263,162	N.P.	....	.....	....	8⅜	2¼	6¾	1⅞
31	22⅝	50	25	25	25	Eureka Pipe Line	50,000	$50	$1Q	2-1-38	4.00	47½	24½	47½	38⅛
42⅞	33	5,400	37⅞	34½	37⅞	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-38	1.00	63½	33	59	36
70	56	1,100	67¼	65⅛	67¼	Humble Oil & Refining	8,923,935	N.P.	37½c	4-1-38	2.00	87	54⅞	80	57
19½	15	1,600	17½	16¼	17½	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	12-1-37	1.25	24¼	14½	24½	19¾
8¼	6⅝	200	7½	7	7½	Indiana Pipe Line	300,000	$10	30c	5-14-38	.80	15	5⅞	9¾	5½
31¼	23	4,900	25¾	24½	25½	International Petroleum	14,247,088	N.P.	$1.25†‡	12-1-37	2.50	39½	23½	39⅝	32⅝
5	3¼	900	3¾	3⅝	3¾	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	8¾	2⅜	5¾	2⅝
25⅛	15⅝	3,500	22¾	21	22¾	Lion Oil Refining	434,820	N.P.	50cQ†	12-24-37	1.50	34	12½	17¾	7⅜
9¼	6⅝	1,600	7¾	7⅜	7¾	Lone Star Gas	5,382,723	N.P.	20c	4-20-38	.60	14¼	5¼	14¼	9⅞
9⅜	6½	4,500	7⅞	7⅛	7⅞	Louisiana Land & Exp.	3,000,000	N.P.	20cQ†	12-15-37	.50	15¼	6¾	15⅜	9⅞
8⅜	6⅜	800	7⅝	6⅞	7⅝	Midwest Oil Co.	998,444	$10	50c	12-15-37	1.00	14⅝	6¼	..	..
5¼	4½	2,200	5¼	5	5	Mountain Producers	1,682,182	$10	30cSA	12-15-37	.60	7⅞	4⅛	8⅜	5
14⅝	12⅛	1,600	13⅝	12⅝	13	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-38	1.00	19½	12	23	17⅜
9¼	7⅝	400	8½	8	8½	National Transit	509,000	$12.50	55cSA	12-15-37	1.00	12½	7¼	15¾	9¼
2⅝	1½	400	1⅜	1⅝	1⅜	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	....	5	1⅛	6⅝	1⅝
4½	4	No sales	..	..	..	New York Transit	100,000	$5	15c	4-15-38	1.00	5⅜	3⅞	6¼	4¼
6	4	No sales	..	..	..	Northern Pipe Line	120,000	$10	25cSA	12-1-37	1.00	12¾	5¾	9¾	4⅞
7⅜	4½	11,700	5½	5¼	5½	Pantepec Oil	1,608,700	N.P.	....	.....	....	9⅝	2¾	10⅛	3¼
3½	1⅝	1,300	2½	2	2⅜	Root Petroleum Co.	336,045	$1	25c	2-1-37	.25	13¾	2	19¼	4½
4	2⅛	600	3¼	2⅝	3¼	Ryan Consolidated	296,931	N.P.	....	.....	....	6½	2¼	4¾	1⅞
5⅜	3⅜	100	4	4	4	Southern Pipe Line	100,000	$10	15cSA	3-1-38	.45	7¼	3⅞	7⅞	3¼
39	28¾	800	35	34	35	South Penn Oil	1,000,000	$25	50cQ†	3-31-38	3.65	56	35	44	32½
22¼	19½	No sales	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50cQ	4-1-38	2.00	42	20	60	44
18	15	3,000	16⅞	16	16⅜	Standard Oil of Kentucky	2,604,790	$10	25c	3-15-38	1.50	21⅛	14¾	23⅜	17⅛
7½	6⅛	No sales	..	..	..	Standard Oil of Nebraska	166,403	$25	25c	3-29-37	.25	13¾	8	14⅝	11
22	16¼	700	18¼	17¾	18¼	Standard Oil of Ohio	753,740	$25	25c	3-15-38	1.50	45	16	40	21¾
3¼	2⅛	5,200	2⅞	2⅝	2⅞	Sunray Oil	1,910,119	$1	10c	12-24-37	.25	4⅞	2	5	2⅝
4⅜	3½	900	4⅛	4	4⅛	Texon Oil & Land	336,028	$2	15cQ	3-31-38	.45	7⅝	2	9¾	5⅜
7⅝	4⅝	800	6	5½	6	Transwestern Oil Co.	750,000	$10	....	.....	....	13⅞	4⅝	..	..
5¼	2¾	8,200	3⅝	3⅛	3⅝	United Gas Corp.	7,818,959	$1	10c	9-15-37	....	13⅝	3	10¾	4

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

PERSONAL

LLOYD N. HAMILTON, London director of the Standard Oil Company of California, is on a visit to his company's headquarters in San Francisco.

W. C. BEAN, formerly in the Tulsa headquarters of the Shell Oil Corporation, has been transferred to Wichita Falls, Tex., as head of the company's geological department there. Shell is planning active development of recently acquired K.M.A. and North Texas acreage. GEORGE P. HARDISON has been transferred from Centralia, Ill., to serve as Mr. Bean's assistant. HUGH DICKSON has been transferred from Amarillo, Tex., to head the lease and land department of the company's Wichita Falls office. WALLACE COLLINS, transferred from the Panhandle office, will be in charge of the company's production department.

J. C. BLACKWOOD, petroleum engineer with the Amerada Petroleum Corporation, has been transferred from East Texas to the Houston, Tex.. office.

H. D. BROWN was advanced to the vice presidency and H. D. BROWN, JR., was elected a member of the board at the recent annual meeting of the Brundred Oil Corporation, Oil City, Pa.

C. H. MULLINGER, assistant treasurer of the International Petroleum Company, Toronto, Canada, left the United States April 9 for a trip to Talara, Peru, where the company has its Peruvian headquarters.

R. G. GOUCH, formerly assistant production superintendent for the Continental Oil Company in the Wichita Falls district, Texas, has been promoted to the production engineering division, with offices in Fort Worth.

HENRY N. TOLER, state oil and gas supervisor in Mississippi, has resigned to become chief geologist for the Southern Natural Gas Company with headquarters in Jackson, Miss. He has been with the state department for five years, previously having been with the geological departments of the Texas Corporation and the Gulf Oil Corporation.

GOVERNOR HUXMAN, of Kansas, has invited executives of Mid-Continent crude oil purchasing companies to be his guests next Monday in Topeka. The governor wants to find out from the pipe line representatives just what the future for his state will be. Many producers have complained that the pipe-line outlet of Kansas is steadily falling off, and they declare it takes six and one-half years under proration for a well to pay out.

DR. ARTHUR WADE, a member of the Australian government's oil advisory committee and a member of council of the Institution of Petroleum Technologists, has been elected a vice president of the Australian and New Zealand Association for the Advancement of Science. This year he is also chairman of the association's section on geology.

HENRY ZWEIFEL, Fort Worth, Tex., oil man and attorney, was named president of the Cosden Petroleum Corporation at the annual meeting of stockholders in Wilmington, Del. Mr. Zweifel has acted as general counsel for the company many years and was made a director last year. W. D. RICHARDSON was named first vice president and J. W. LANE was reelected secretary-treasurer.

PROFESSOR VLADIMIR N. IPATIEFF, director of chemical research for the Universal Oil Products Company, has been appointed to represent Northwestern University at the tenth annual congress of chemistry, to be held in Rome May 16. DR. WALTER DILL SCOTT, president of the university, has notified Professor Ipatieff.

L. E. DOUGLASS, whose sale of acreage in Rice County, Kansas, to the Atlantic Refining Company for $800,000 placed him in the upper brackets of Mid-Continent oil operators, provided an unusual Easter holiday for 21 children, 6 to 15 years old, from his home town, Hutchinson, Kans. Sixteen adults also, most of them parents of the children, went as chaperons, guests of Mr. Douglass. A five-car special train took the party to Chicago, where 19 rooms in the Palmer House had been reserved. Three of the youngsters were Mr. Douglass' children. The others were classmates. At a dinner the dessert was illuminated ice cream rabbits, in nests of frozen spun sugar. The party is reported to have cost $6,000. "Worth it," smiled Mr. Douglass.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The Iroquois Gas Company of Buffalo, N. Y., moves into its new eight-story office building.

A gas well good for 11,000,000 feet per day is completed 2 miles west of Mexia, Tex. The gas comes from shale at around 675 feet.

The State of Texas produced an average of 38,889 barrels per day in March. Of this 20,871 barrels per day was of light oil from northern Texas and 18,018 barrels per day of heavy oil from Gulf Coast fields.

20 YEARS AGO

W. C. Neil, a Pennsylvania driller, who had been in the Burma, India, oil fields for nine years, dies in Singapore, where he had been removed for medical treatment.

Three wells in the Towanda pool (Township 26-4), Butler County, Kansas, completed last week aggregated 39,000 barrels in initial production.

There are 260 wildcat rigs up and wells drilling in 76 of the 86 counties in Oklahoma. World war demand for oil and a $2.25 crude market are the incentives.

10 YEARS AGO

Thomas R. Weymouth, president of the Iroquois Gas Company of Buffalo, N. Y., has been elected chairman of the board and president and general manager of the Oklahoma Natural Gas Corporation with headquarters in Tulsa. He will assume his new duties on May 1.

Charles F. Meyer is elected president of the Standard Oil Company of New York, succeeding Herbert L. Pratt, who was made chairman of the board.

W. T. Holliday is elected president of the Standard Oil Company of Ohio. He succeeds A. P. Coombe, retired, who had headed the company since 1908, having succeeded F. B. Squire, who had followed John D. Rockefeller, the company's first president.

A. C. HENSON, formerly of Seminole, Okla., is now scouting the Tulsa district for the Texas Company. He takes the place vacated by the death of Oscar Shaffer.

D. D. UTTERBACK, Texas Company geologist stationed in the West Texas district with an office in Midland for several years, has been transferred to the company's district office in Shreveport, La.

PAUL OBERGFELL, who has been in the Berlin office of Edeleanu Company, Ltd., New York., has returned to the United States to remain several months. He is planning an extensive trip to the Pacific Coast and through the Mid-Continent.

J. W. HERBERT, president of the Falcon Oil Company of Fort Worth, Tex., heads a committee planning an appreciation dinner to be given May 3 by the Fort Worth Chamber of Commerce in honor of oil men and those in allied lines who recently have moved to Fort Worth.

DON BENSON, district geologist in the Texas Panhandle area for the Sinclair Prairie Oil Company, has been transferred to the company offices in Baton Rouge, La. His district there covers southern Louisiana, southern Mississippi, all of Alabama, Georgia and Florida.

C. F. SIEFRIED, superintendent of the Wyoming state highway department, says arrangements are being made to place the famous Wyoming "bronco," which has won fame for the state's license plates, on highway markers within the state. Large signs bearing the snaky cayuse and its rider will greet tourists on entering and leaving the state. Smaller signs with a replica of the figure will be placed along state highways not marked by federal highway shields.

PARAGRAPHS

A. C. GALBRAITH has been made vice president in charge of public relations and personnel of the Union Oil Company of California. He has been with the organization since 1916.

W. W. FONDREN, of Houston, Tex., has been appointed to the advisory board of the Sabine Royalty Corporation of Tyler, Tex. Mr. Fondren was one of the founders of the Humble Oil & Refining Company.

H. L. FARRAR, president of the Coast Counties Gas Company; R. W. HANNA and J. H. TUTTLE, vice presidents; B. W. LETCHER, secretary, and V. F. PALMER, treasurer, were reelected at the annual meeting of the company held in Los Angeles. Directors of the company include H. D. COLLIER, H. L. FARRAR, R. W. HANNA, G. E. KENNEDY, E. G. LAWSON, M. E. LOMBARDI, P. H. PATCHIN, A. S. RUSSELL and J. H. TUTTLE. G. M. FOSTER and LEE LAIRD, assistant secretaries, and G. J. O'BRIEN and R. N. DREIMAN, assistant treasurers, were reappointed.

FRANK R. IRWIN, petroleum engineer, formerly with the Shell Oil Company in California, has been transferred to Texas, with the Shell Petroleum Corporation. Following a tour of the Gulf Coast and East Texas fields, he will be stationed at Jefferson.

A. W. WEEKS has resigned as district geologist in charge of exploration work for the Shell Petroleum Corporation in the Wichita Falls area of Texas, which post he had held more than two years. He will continue to reside in Wichita Falls. Mr. Weeks joined the Shell organization in 1925. He had received his master's degree from the University of Wisconsin the year before. He has written important papers on Texas geology and other subjects.

FOREST D. DORN, president of the Forest Oil Corporation, Bradford, Pa., and MRS. DORN observed their silver wedding anniversary with a dinner dance at the Valley Hunt Club, Bradford, last Friday night. Mr. Dorn is head of five Forest Oil Corporation subsidiaries, which operate in the Pennsylvania and Mid-Continent fields.

G. C. CONDRA, Nebraska state geologist, will be the principal speaker at the conference to be held Saturday, May 7, in the Engineering Auditorium, University of Oklahoma, Norman, under the auspices of the university's chapter of Sigma Gamma Epsilon, national honorary geological fraternity. R. C. MOORE, Kansas state geologist and chairman of the conference, will discuss Permo-Pennsylvanian contact. A banquet will be held.

A. S. ROSS is now with the Texas Company as petroleum engineer in the Shreveport, La., district.

R. F. BRADLEY, of the Standard Oil Company of California's aviation department in San Francisco, was in Los Angeles recently attending the air-boat show and exhibition at Pan Pacific Auditorium.

W. T. CRAVENS, petroleum engineer with the Arkansas Fuel Oil Company, is now stationed in the East Texas field, having been transferred from the company's home office in Shreveport, La.

DON REESE, district geologist for the Sinclair Prairie Oil Company at Tyler, Tex., and BOB SPRAGUE, geological scout at Baton Rouge, La., have been transferred to the company's offices in Houston, Tex.

L. P. ST. CLAIR, president of the Independent Oil Producers Agency of California; STANLEY MORSEHEAD, vice president, and W. B. ROBB, secretary, were reelected unanimously to their respective posts at the annual meeting of the agency held in Bakersfield.

W. W. HEARN, in the construction department of the Iraq Petroleum Corporation, with headquarters at Haifa, Palestine, a Mediterranean seaport, is visiting Mid-Continent oil fields following an absence of six years. Before accepting the foreign assignment Mr. Hearn was associated with the old Prairie Pipe Line Company in Kansas and Oklahoma. He was in Wichita, Kans., over the week-end visiting relatives before going to Tulsa, where he formerly resided. He assisted in the construction of the vast pipe line which reaches across the Syrian desert to give the Mosul oil fields of Iraq an outlet on the Mediterranean.

He Stayed Right There

A young fellow of 20 from Tripoli, Iowa, appeared at the offices of the Standard Oil Company of California back in 1902 and asked for a job as stenographer. No opening, they told him, but a man was ill, and the job-seeker might fill in for a few days if he wished. He did.

W. H. BERG

The company had acquired a future president. The youth was W. H. Berg. And following his recent election to that post Mr. Berg a few days ago was chosen chairman of the board of the Pacific Public Service Company. His association with the Standard of California has been without interruption. They say he was put on the payroll permanently not so much because of his proficiency as a stenographer as because of his knack of memorizing the text of dictation. But soon his neatly typewritten reports brought promotion. On the day of the San Francisco earthquake in 1906 young Berg packed a suitcase with valuable papers before the building burned, and in nerve-racking days that followed, during which his home was destroyed, these documents never left his possession.

The producing department attracted him. For a time he served as a scout. Then he was made chief clerk of the producing department. He became general superintendent, assistant manager, manager of the land lease division, and then general manager of the foreign crude oil purchasing department. Mr. Berg was elected a director in 1924, vice president in 1927 and last December president.

WILLIAM E. SODEN, chief engineer of the Sun Oil Company's Marcus Hook, Pa., refinery, has been transferred to the home office of the company in Philadelphia.

DR. H. B. STENZEL, of the Bureau of Economic Geology, Austin, Tex., was the principal speaker at a dinner meeting last week of the Shreveport Geological Society.

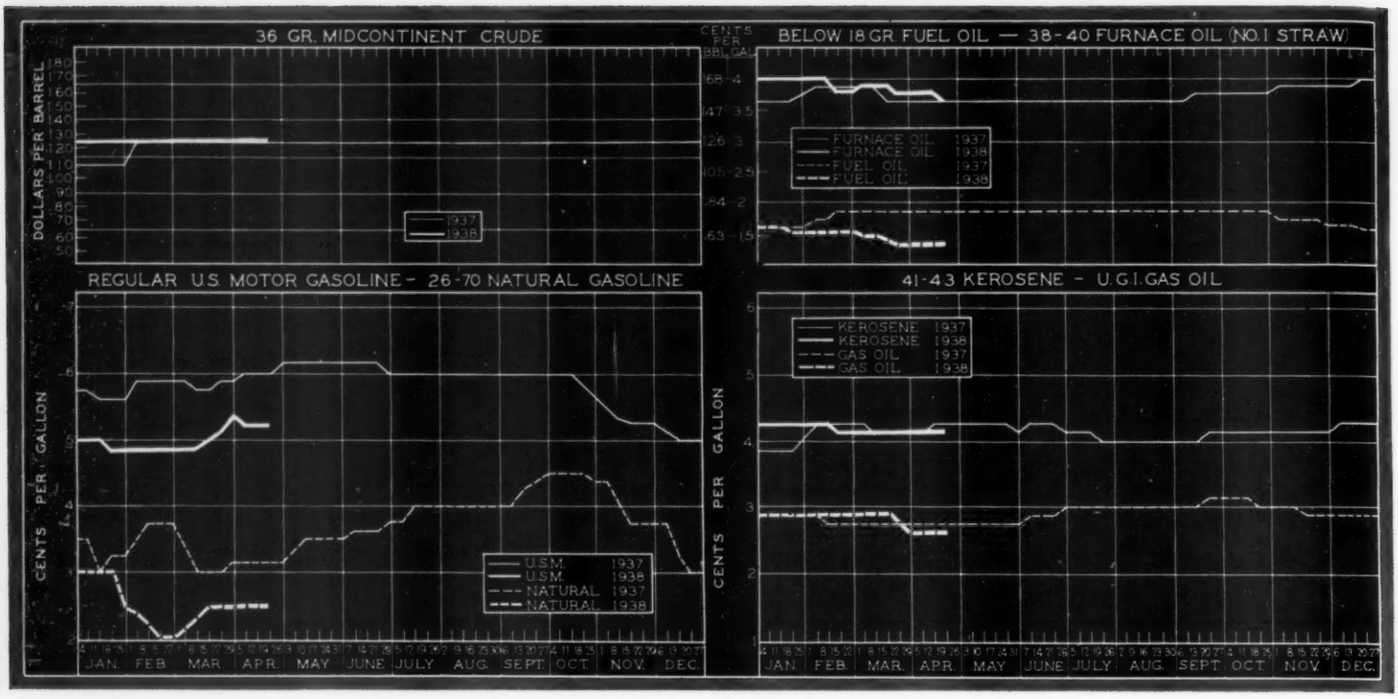
H. H. LOWRIE, director of the Quaker State Oil Refining Corporation, Oil City, Pa., and MRS. LOWRIE have returned after a three weeks vacation in California.

E. R. SLOAN has been made chairman of the Kansas Corporation Commission for the next year. He succeeds E. E. BLINCOE. The third member of the commission is HOMER HOCH.

J. L. PATTERSON, Sun Oil Company superintendent in the Big Spring, Tex., district, is receiving congratulations on an exceptional safety record. The district has had no lost-time accidents in more than seven years.

LEO MEYER, tax expert for the Mid-Continent Petroleum Corporation, whose term of office on the Tulsa park board expires this month, will be reappointed, MAYOR T. A. PENNEY has announced. Mr. Meyer was appointed four years ago and has been active in city park improvement work since then.

D. TEMPLE and D. E. FOX, assistant engineers for Anglo-Iranian Oil Company, Inc., have been transferred from the home office in London to the Iran staff. DR. W. PRATT, development engineer; L. F. HOOPER, engineer, and A. E. RIDINGS, assistant civil engineer, have been transferred from Llandarcy to Iran.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Pleasant Motoring Weather Quickens Gasoline Buying in Group 3 Area

By T. F. SMILEY

Moderate pickup in jobber orders for gasoline helped to keep up the spirits of refiners in the Group 3 area this week. Pleasant motoring weather attended the week-end, and cars moved in endless streams on main highways Sunday, keeping filling stations busy and starting a draft on jobber stocks. The evil effects of the recent rain, snow, and floods had worn off. And jobbers who had been out of the market since they filled their tanks just before the raise in freight rates last month were straggling back again, their supplies requiring renewal.

East Texas Facing Difficulties

The one spot stirring a little concern in the Mid-Continent gasoline outlook was East Texas. That area, which had been one of outstanding strength until a few weeks ago, was reported to be looking for outlets. The change in conditions was ascribed largely to the fact that shipments to Gulf Coast points have fallen off sharply. The East Texas Refining Co. closed its plant at Longview last week. Counterbalancing this action, however, Danciger Oil & Refineries, Inc., has resumed operation of its Longview plant. Danciger was said to have had only a working inventory left and to be operating now at a rate slightly under demand.

An encouraging sign mentioned by sales managers was that few buyers were making the familiar expostulations about quotations. Said one: "The jobber who used to tell me, 'Oh, I can get it for an eighth less than that,' doesn't say a word now. He knows we wouldn't consider any lower quotation."

Fear of a cut in crude prices, which might have the effect of sending gasoline, already too low, to still deeper levels, was making some jobbers wary. This cause of uneasiness lost some of its potency with the increase this week in tankcar orders, the nearness of the vacation season, and the widening belief that a period of inflation and freer spending lies ahead. A growing number of buyers were adopting the view that the abnormal spread between the cost of crude and the price obtainable for gasoline would be narrowed soon by higher prices for gasoline.

Extension of voluntary proration of crude production and of pipe-line takings was pointed to as a healthy symptom.

Disappointment was expressed over the action of bright stocks and neutrals. Hope had been entertained that shutdowns and curtailment of operations in recent weeks would impart fresh sturdiness to the lubricants. And as a matter of fact indications of a healthier market actually had begun to appear when refiners with unwieldy stocks resorted to the old-time expedient of giving concessions to move them.

Letting Price-Cutters Have It

Some refiners declared they would stay out of the spot market till better prices were obtainable, in the meantime taking care of regular customers only. "We are selling lubes at a loss," said one. "So far as we are concerned, the price-cutters may have the business. The more of it they get, the sooner they'll go broke."

Dullness prevailed in natural gasoline. Spot business was stagnant. Small manufacturers with restricted storage facilities were having no easy time disposing of their output. Large manufacturers continued to store at a rate which they figured would give them about what they will need when the demand for fall blending sets in.

The heating-oil market was gasping. Prices receded throughout the list. Buying which flared up for a few days during the recent cold wave dropped so suddenly that the outlook seemed even more barren than before. But this is the dull season for furnace distillates, and nobody expects anything else. Kerosene and tractor fuels were standing up pretty well, but they too had lost their edge.

Refined Oil Market Barometer

A spurt in gasoline consumption marked the Easter week-end, with benefit to the tankcar market. Gulf Coast purchases off. Fear of lower crude prices, which has exerted a depressing effect on gasoline buying, is less pronounced. Price-cutting is tending to neutralize the favorable results expected from curtailing output of bright stocks and neutrals. Fuel oils inactive. Wax lifeless.

MID-CONTINENT. Gasoline improving. Furnace oils off. Bright stocks and neutrals soft.

EAST COAST. Gasoline demand rising. Kerosene slightly firmer. Heating oils dull.

GULF COAST. General market quiet. Expected export inquiries have not appeared.

CALIFORNIA. Kerosene down. Diesel and gas oil soft. General market inactive.

PENNSYLVANIA. Lubricating oils weak and prices off. Gasoline buying improved.

CHICAGO. Gasoline steady, with spot buying cautious. Heavy fuels stagnant.

Eastern Gasoline Consumption Swelled by Holiday Weather

By H. STANLEY NORMAN

NEW YORK, Apr. 19.—The Easter holidays, coupled with warmer weather, sent gasoline consumption to a new peak for the current season last week end. Tone of the tankcar and barge motor fuel market was distinctly benefited, but outside of the New York harbor barge quotations prices remained unchanged from the preceding week. During the early part of the past week and for part of the preceding week 65-octane motor fuel was selling in barges at 6 cents per gallon.

The heavier demand which made its appearance Tuesday and continued through the week as dealers prepared for the Easter week-end snapped the barge price back up to 6¼ cents per gallon. Tankcar gasoline is generally quoted at 6½ cents, with relatively little shading heard of in New York territory at the present time.

Motor fuel was lowered to 6½ cents per gallon last week at Philadelphia and Baltimore by practically all sellers. The market at both points had been considered on the weak side for several days and general recognition of the price shading was finally forced on the big suppliers.

Fuel oil demand and prices are still unsatisfactory. There appears to be some disagreement on Gulf Coast conditions. Some observers report Bunker C fuel oil can be had in large quantities at 70 cents per barrel at Gulf Coast terminals, but another source thought a bid of 75 cents would be necessary to make up a cargo. Consumption by industrial burners is still considerably below normal.

Some improvement was registered during the week in kerosene demand. Spring plowing is starting in several sections of the North and Middle West and this business will be in full stride within a couple of weeks. Prices are unchanged at a range of 4½ to 4⅝ cents on the Gulf and at 5½ to 6 cents along the North Atlantic seacoast.

The Gulf Coast export market is quiet. Inquiries have failed to develop to the extent anticipated by some after expropriation of Mexican oil properties. Some of the companies whose properties were seized in Mexico, however, are supplying their requirements for foreign trade through domestic facilities. The business does not appear in the spot market and has a limited effect on general conditions. One unit acquired three cargoes of motor fuel on the Gulf Coast to supply South American trade that normally would have come from Mexico.

Outside of New Jersey retail gasoline conditions in the North are on fairly stable ground. Premium motor fuel is available at New Jersey stations for 17 cents per gallon and the other grades correspondingly lower. The advance of a half cent per gallon in most New England districts made two weeks ago by Socony-Vacuum Oil Co., Inc., has been generally adopted by all suppliers. The half cent advance applied to tankcar and tank-wagon business at practically all points. Socony-Vacuum lowered the Providence, R. I., price a half cent, meeting a competitive situation there, but the retail postings are unchanged.

Most Pennsylvania refiners have lowered their tankcar quotations on some grades of lubricating oil. Bright stock of 25 pourtest is generally offered at 14½ cents, down a penny. Neutral oils of 200 and 150 viscosity have been lowered a cent and are now generally offered at 16 and 14 cents per gallon, respectively. U. S. Motor gasoline in western Pennsylvania is offered currently at 5 cents per gallon. A few refiners in the lower field who lowered their quotations to 4¾ cents early this month are reported to be back now on the higher schedule. This is taken to indicate that demand probably has advanced to a point beyond their expectations.

There is a growing tendency among jobbers and dealers to purchase ahead and to increase their inventory standards somewhat. During the first three months jobbers and dealers alike purchased on a hand-to-mouth basis to keep in a position where advantage could be taken of any weak spots in the market. With consumption growing rapidly now and better movement certain to develop as the summer advances the dealers and jobbers are on the other side of the picture. Some observers feel the motor fuel market can not expect to move ahead much until stocks are reduced substantially, but there is likewise little probability it will dip below current quotations at least for six months.

The price of $1.05 a barrel for Bunker C fuel oil is now general along the North Atlantic seaboard. Marine consumption of heavy fuel oil is holding reasonably near the 1937 level and demand for diesel oil is considered satisfactory. Reports from boat manufacturers and success of the show held in New York last winter indicates pleasure craft operation will be materially higher this summer than for any similar period in the past. Diesel oil is steady at $1.65 per barrel.

There is comparatively little activity in the domestic heating oil market but prices are about unchanged. There are occasional reports of shading in the tank-wagon field, but 6 cents represents the low for No. 2 or 3 fuel. Most sellers are quoting 6½ to 7 cents per gallon for tank-wagon delivery.

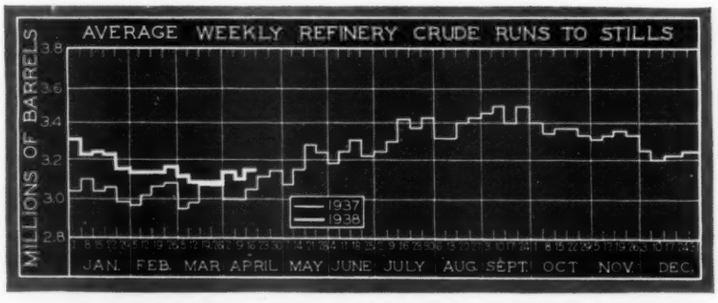
Wax sales and prices are unsatisfactory. Demand has been limited to immediate requirements and reports of price shading are frequent. Some Pennsylvania refiners dropped their wax quotations a tenth of a cent last week, but the New York market was generally unchanged. Confirmation was lacking on reports that some refiners would shade current prices for a substantial volume. Most refiners contacted said prices were near the bottom so far as they were concerned and would not be interested in selling at lower figures. White and yellow scale is generally offered currently at 1.85 to 2 cents per pound in both the domestic and export market. Demand from abroad has been extremely spotty so far this year.

A. P. I. Weekly Refinery Statistics

Week Ending April 16, 1938

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	475,000	23,030,000	9,615,000
Appalachian	88.4	100,000	3,381,000	1,315,000
Indiana, Illinois, and Kentucky	92.4	394,000	15,404,000	7,236,000
Oklahoma, Kansas, and Missouri	84.7	267,000	8,059,000	3,507,000
Inland Texas	56.6	123,000	2,716,000	1,570,000
Texas Gulf	95.7	752,000	13,198,000	8,156,000
Louisiana Gulf	96.6	124,000	2,560,000	3,145,000
North Louisiana and Arkansas	63.7	46,000	488,000	566,000
Rocky Mountains	69.7	38,000	2,252,000	794,000
California	90.9	550,000	15,953,000	87,492,000
Total reported	89.0	2,869,000	87,041,000	123,396,000
Estimated unreported	.....	281,000	4,960,000	2,550,000
*Estimated total	.....	3,150,000	92,001,000	125,946,000
*Estimated total, previous week	.....	3,110,000	92,279,000	125,190,000
*April 17, 1937	.....	2,755,000	73,654,000	96,508,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending April 2, 1938	308,237,000 barrels
Week ending March 26, 1938	307,557,000 barrels
Week ending April 3, 1937	298,163,000 barrels

A petroleum engineering exhibit will be a feature of the Engineers' Exposition to be held at the University of Kansas, Lawrence, April 22 and 23. Prof. Eugene Stephenson is head of the department.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of April 19, 1938

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Dlr.	Inc. tax	Kero. tank-wag.
Chicago, Ill.	15.6	13.6	4.0	10.5
Decatur	15.6	14.1	4.0	10.5
Joliet	15.6	14.1	4.0	10.5
Peoria	15.6	14.1	4.0	10.5
Quincy	15.4	13.9	4.0	10.3
Davenport, Ia.	15.6	14.1	4.0	‡10.5
Des Moines	15.4	13.9	4.0	‡8.3
Mason City	15.8	14.3	4.0	‡10.7
Sioux City	15.6	14.1	4.0	‡10.5
Duluth, Minn.	17.4	15.9	5.0	11.3
Mankato	17.0	15.5	5.0	10.9
Minneapolis	17.0	15.5	5.0	10.9
LaCrosse, Wis.	17.0	15.5	5.0	10.9
Green Bay	17.4	15.9	5.0	10.3
Milwaukee	16.8	15.3	5.0	10.7
Detroit, Mich.	15.3	13.8	4.0	10.0
Grand Rapids	14.8	13.3	4.0	9.7
Saginaw	16.3	14.8	4.0	9.3
Evansville, Ind.	17.1	15.6	5.0	†11.0
Indianapolis	17.3	15.8	5.0	†11.2
South Bend	17.6	16.1	5.0	†9.4
Fargo, N. Dak.	17.2	15.7	4.0	12.1
Minot	18.5	17.0	4.0	13.4
Huron, S. Dak.	17.5	16.0	5.0	11.4
Kans. City, Mo.*	14.9	13.4	4.0	9.8
St. Louis*	15.2	13.7	4.0	10.1
St. Joseph*	14.9	13.4	4.0	9.8
Wichita, Kans.	14.4	12.9	4.0	8.3

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over 7 cents; Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Tank-wag. dlr.	Tank-car con'r.	Inc. tax	Kero. tank-wag
Atl'tic. City, N.J.	12.75	11.25	4.0	8.5
Newark	12.75	11.25	4.0	8.0
Annapolis, Md.	14.85	13.35	5.0	9.5
Baltimore	14.25	12.75	5.0	9.0
Cumberland	16.65	14.15	5.0	10.0
Wash'g'n, D. C.	12.5	11.0	3.0	9.5
Danville, Va.	16.95	14.45	6.0	12.9
Norfolk	15.75	13.25	6.0	11.5
Petersburg	16.05	13.55	6.0	11.7
Richmond	16.05	13.55	6.0	11.7
Roanoke	17.25	14.75	6.0	12.9
Charles'n, W. V.	17.05	14.55	6.0	12.6
Parkersburg	15.35	13.85	6.0	11.2
Wheeling	16.25	14.85	6.0	12.2
Charlotte, N. C.	18.65	16.15	7.0	12.6
Hickory	19.15	16.65	7.0	13.0
Mt. Airy	18.95	16.45	7.0	12.8
Raleigh	18.25	15.75	7.0	12.1
Salisbury	18.75	16.25	7.0	12.7
Charleston, S. C.	17.25	14.75	7.0	11.1
Columbia	18.25	15.75	7.0	12.1
Spartanburg	18.95	16.45	7.0	12.9

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be the equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline Tank-wag.	Net dlr.	Inc. tax	Kero. tank-wag.
Atlanta, Ga.	21.0	18.0	7.0	*14.0
Augusta	21.0	18.0	7.0	*14.0
Macon	21.0	18.0	7.0	*14.0
Savannah	19.5	16.5	7.0	*12.0
Birm'ham, Ala.	21.0	18.0	8.0	12.0
Mobile	21.0	18.0	9.0	†11.0
Montgomery	21.0	19.0	9.0	†13.0
Jackson, Miss.	19.5	16.5	7.0	*13.0
Vicksburg	19.5	16.5	7.0	*13.0
Jacks'ville, Fla.	22.5	17.5	8.0	†11.0
Miami	20.0	17.0	8.0	†12.5
Pensacola	22.0	19.0	9.0	12.0
Tampa	20.5	17.5	8.0	10.5
Lexington, Ky.	19.0	16.0	6.0	11.0
Covington	18.5	15.5	6.0	11.0
Louisville	19.0	16.0	6.0	10.5
Paducah	19.0	16.0	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax. †Subject to 2-cent discount.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Dealer	Inc. tax	Kero. tank-wag
Denver, Colo.	14.0	5.0	11.5
Grand Junction	19.0	5.0	15.0
Pueblo	13.0	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	16.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	19.5	6.0	15.5
Helena	19.5	6.0	15.5
Great Falls	19.5	6.0	15.5
Salt Lake City, Utah	19.5	5.0	16.0
Twin Falls, Ida.	21.0	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	*6.5	12.0

*Includes city tax of one-half cent.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Tank-wag. con'r.	Di-vided dlr.	Inc. tax	Kero. tank-wag.
Ohio points	16.5	15.5	5.0	*13.0

*Includes state tax of 1 cent.

New York and New England

SOCONY-VACUUM OIL CO., INC

	Gasoline Tank-wag.	Tank-car	Inc. tax	Kero. tank wag.
Albany, N. Y.	14.5	12.5	5.0	9.0
*Met. N. Y.:				
M'htt'n, Br'nx	14.0	12.5	5.0	8.75
Staten Island	14.0	12.5	5.0	8.75
Q'ns & Bklyn.	14.0	12.5	5.0	8.75
Buffalo	14.0	13.0	5.0	7.5
Rochester	15.0	13.2	5.0	8.5
Syracuse	14.5	13.1	5.0	9.0
Boston, Mass.	13.5	11.75	4.0	8.5
Portland, Me.	15.0	13.0	5.0	8.75
Manch'ter, N.H.	15.5		5.0	9.0
Burlington, Vt.	15.4	13.4	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank-wag.	Serv. sta.	Inc. tax	Kero. tank-wag
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.0
Reno, Nev.	20.5	21.5	5.0	13.0
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	22.5	23.5	6.0	16.0
Tacoma	20.0	21.0	6.0	13.5

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wag.	Dlr.	Inc. tax	Kero. tank-wag.
Omaha	18.0	16.5	6.0	10.8
McCook	17.8	15.3	6.0	10.3
Norfolk	18.4	16.9	6.0	10.3
North Platte	18.8	16.9	6.0	11.2
Scotts Bluff	19.5	16.3	6.0	12.3

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Tank-wag. dlr.	Tank-car con'r.	Inc. tax	Kero. tank-wag.
N. Orleans, La.	19.0	16.5	*10.0	†12.0
Baton Rouge	17.0	14.5	8.0	12.0
Alexandria	17.5	15.0	8.0	10.5
Lafayette	18.0	15.5	8.0	12.5
Lake Charles	18.0	15.5	8.0	12.5
Shreveport	16.5	14.0	8.0	9.5
Kn'xv'lle, Tenn.	20.0	17.5	8.0	14.0
Memphis	18.0	15.5	8.0	12.0
Chattanooga	19.5	17.0	8.0	13.5
Nashville	19.0	16.5	8.0	10.5
Bristol	19.0	17.75	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline Tank-wag. dlr.	Tank-car con'r.	Inc. tax	Kero. tank-wag.
Philadelphia, Pa.	13.75	12.25	5.0	10.0
Pittsburgh	15.0	13.0	5.0	10.5
Allentown	14.25	12.75	5.0	10.5
Erie	14.5	13.0	5.0	10.0
Scranton	14.5	13.0	5.0	10.5
Altoona	15.0	13.0	5.0	10.5
Dover, Del.	14.0	....	5.0	10.5
Wilmington	14.0	....	5.0	10.5
Springf'd, Mass.	14.0	....	4.0	8.0
Worcester	14.5	....	4.0	9.0
Hartford, Conn.	13.6	....	4.0	8.0
New Haven	13.5	....	4.0	8.0
Providence, R. I.	13.3	....	4.0	8.5

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Dealer	Inc. tax	Kero. tank-wag.
Muskogee, Okla.	14.5	5.0	7.0
Oklahoma City	14.0	5.0	8.0
Tulsa	14.0	5.0	6.0
Ft. Smith, Ark.	14.25	5.0	8.0
Little Rock	17.25	7.5	9.5
Texarkana	14.0	5.0	8.5

Texas

	Gasoline Tank-wag.	Serv. sta.	Inc. tax	Kero. tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	14.0	18.0	5.0	8.0
Houston	14.5	19.0	5.0	8.0
San Antonio	13.5	17.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	21.0	6.0	17.5
Toronto, Ont.	22.0	6.0	17.0
Hamilton, Ont.	22.0	6.0	17.0
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	28.1	7.0	22.3
Regina, Sask.	27.0	7.0	22.0
Saskatoon, Sask.	29.8	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta.	24.0	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Standard Oil Co. (Indiana) April 12 reduced tank-wagon gasoline 1.7 cents at Grand Rapids.

Standard Oil Co. of Kentucky March 23 advanced tank-wagon and dealer gasoline 2 cents at Paducah; March 23 reduced tank-wagon and dealer gasoline .5 cent at Miami; March 30 reduced tank-wagon gasoline 1 cent at Montgomery.

Standard Oil Co. of California April 12 advanced tank-wagon and station gasoline .5 cent at Phoenix and Reno.

Outlet For Taber Field

In the Taber field, in Alberta, 3,000 feet of 2-inch line has been laid from Plains Petroleums No. 2, section 25-9-17w5, to the highway to deliver crude to tank trucks. Upwards of 1,000 bbls. of crude from No. 2 has been shipped to the Imperial refinery at Regina, and additional shipments will be made as tankcars are available. Plains No. 4, LSD 15, section 25-9-17w4, is spudding. Plains No. 5, LSD 2, section 36-9-17w4, is starting.

North Taber Royalties No. 1, LSD 7, section 10-11-15w4, is digging cellar. Location was made for the company by H. M. B. Inglis, field engineer, following the drilling of four structure tests last fall, when some 10,000 acres under prospecting permit were geologized.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of April 19, 1938

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
60-62 400 grades:		
62 oct. and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
64-66 375	.04¾	.04⅞
68-70 360	.05	.05⅛

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
60-62 400	.04⅜	.04½
64-66 375	.04¾	.04⅞

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)

U. S. Motor grades:		
62 octane and below	.04⅜	.04½
63-66 octane	.04¾	.04⅞
67-69 octane		.05
70-72 octane (regular)	.05½	.05⅝

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below	.04½	.04⅝
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05½	.05⅝

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04⅜	.04⅝
63-66 octane	.04⅝	.04⅞
67-69 octane	.04⅞	.05⅛
70-72 octane (regular)	.05¼	.05½
60-62 400 grades:		
62 octane and below	.04⅜	.04⅝
63-66 octane	.04⅝	.04⅞
67-69 octane	.04⅞	.05⅛
70-72 octane (regular)	.05¼	.05½
64-66 375	.04¾	.05
68-70 360	.05	.05¼

PENNSYLVANIA (Inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.05	.05¼
65 octane	.06¼	.06½
68-70 octane	.06⅞	.07⅛

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06¾	.08¼
58-60 400, 65 oct. and higher	.08½	.09¼

EAST COAST (Domestic)—

U. S. Motor, 60-64.9 octane:		
New York (Bayonne)	.06¼	.06½
Philadelphia	.06¼	.06½
Boston	.06½	.06⅝
Baltimore	.06½	.06⅝
Charleston, S. C.	.07	.07¼
U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.07
Philadelphia	.06½	.07
Boston	.06¾	.07
Baltimore	.07	.07¼
Charleston, S. C.	.07¼	.07½

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05	.05¼
60-64.9	.05¼	.05⅜
65 octane and higher	.05½	.05¾

Naphtha

PENNSYLVANIA (Inland refineries)—

52-56 450 (blending)	.04⅜	.05

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02½
Grade 18-55	.03	.03¼

NORTH TEXAS—

Grade 26-70		.02⅝
Grade 18-55	.03⅛	.03¼

CALIFORNIA—

75-85 375-390	.06½	.07

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70		.03

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110 flash, 540-550 e.p.	.04	.04⅛
41-43 gr., 300-520 l.b.p., 110-125 flash, 500-520 e.p.	.04⅛	.04¼
46-48 gr., 210-230 l.b.p., 480 max. e.p.	.04½	.04⅝

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04¼	.04¼
42-44	.04¼	.04⅜

NORTH TEXAS—

41-43	.04¼	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43	.04⅜	.04½

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04½	.04⅝

PENNSYLVANIA (Inland refineries)—

45	.05	.05⅛
46	.05⅛	.05¼
47	.05¼	.05⅜

CHICAGO (Based on Group 3)—

41-43	.04¼	.04⅜
42-44	.04⅜	.04⅝

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.05	.06

NEW YORK (Bayonne, N. J.)—

41-43		.05¾

***GULF COAST (domestic)—**

41-43	.04⅝	.04¾

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅞	.04
No. 1 prime white, 38-42	.03⅜	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03⅜	.03½
No. 2 dark, 32-36	.03¼	.03⅜
No. 3 zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅜	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36		.03¾

CHICAGO (Based on Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-40	.03¾	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03¾
No. 2 dark, 32-36	.03¼	.03½
No. 3, zero to 15, 28-32	.03¼	.03½
No. 3, 15 and above, 28-32	.02⅞	.03

NEW YORK (Bayonne, N. J.)—

*No. 1		.05¾
*No. 2		.04¾
*No. 4		.04¾

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low cold test, 24-28	1.10	1.15
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.72½	.77½
Below 18 fuel oil, industrial	.55	.60

NORTH TEXAS—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low cold test, 24-28	1.10	1.15
No. 5, low cold test, 18-22	.72½	.77½
Below 18 fuel oil, industrial	.55	.60

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 4, low cold test, 24-28	1.10	1.15
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.72½	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low cold test, 10-16	.60	.70
No. 6, 15 and above, 10-16	.37½	.47½

PENNSYLVANIA (Inland refineries)—

36-40	.04	.04⅜

CALIFORNIA

Los Angeles:		
30-40 gas oil, per bbl.	1.30	1.50
24 plus diesel, per bbl.	1.30	1.50
24 plus diesel (bunkers)	1.35	1.55
12-16 (bunkers at tidewater)	.90	1.00
10-16 (cargo lots)	.80	1.00
12-17 (tankcars)	.70	1.00
10-17 (high sulfur)	.60	.95
San Joaquin Valley:		
10-18 (tankcars)	.60	.85
24 plus diesel, per bbl.	1.30	1.50
San Francisco:		
24 plus diesel, per bbl.	1.45	1.55
24 plus diesel (bunkers)	1.55	1.65
10-16 (bunkers)	1.00	1.05

GULF COAST—

28-30 gas oil		.03⅝
28-30 diesel (bunkers)		1.75
Bunkers (bulk cargoes)	.70	.75
Bunker C (bunkers)	.80	.85

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¾
28-30 diesel (lighterage 6¼c per bbl.)		1.85
28-30 diesel (tankcars)	.04¾	.05
Bunker C (to ocean-going ships in N. Y. harbor)		1.10
Industrial fuel (tankcars)	.04	.04¼

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:		
190-200 D, 15-25		.19
150-160 D, 0-10		.16
150-160 D, 15-25		.14½
150-160 E, 15-25		.13½
100-110 D, 0-10		.14½
Steam refined:		
631 green (treated)		.13½
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour test	.17½	.18½
15 pour test	.16½	.17½
20 pour test	.15½	.16½
25 pour test	.14½	.15½
Steam refined:		
600	.08½	.09
650	.10½	.11½
600 Pennsylvania flash	.11	.13
630 flash	.14	.15
600 Warren E filtered	.13	.14

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:		
150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-3½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 Cold Test:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F. color, 400-405 flash:		
Zero pour test	.16½	.17
10 pour test	.15½	.16
15 pour test	.15	.15½
180 vis. at 70° F., 3 color:		
25 pour test	.15	.15½
200 vis. at 70° F., 3 color:		
Zero pour test	.19½	.20
10 pour test	.18½	.19
15 pour test	.18	.18½
25 pour test	.16	.16½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02⅛	.02¼

PENNSYLVANIA (Inland refineries)—

122-124 (a.m.p.) w.c. scale	.0190	.0200
124-126 (a.m.p.) w.c. scale	.0190	.0200

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0420
125-127 (a.m.p.) wax		.0435
128-130 (a.m.p.) wax		.0445
130-132 (a.m.p.) wax		.0455
133-135 (a.m.p.) wax		.0500
135-137 (a.m.p.) wax		.0515
124-126 (a.m.p.) w.s.	.0205	.0215
124-126 (a.m.p.) y.s.	.0200	.0210
Petrolatum in barrels, carload lots:		
Dark green	.02	.02⅛
Amber	.02⅜	.02½
Extra amber	.02⅝	.02¾
Lily white	.05⅛	.05¼
Snow white	.06⅛	.06¼
Cream	.04⅛	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04¾	.04⅞
60-62 400	.04¾	.04⅞
61-63 390	.04⅞	.05
64-66 375	.04⅞	.05

LOS ANGELES—

U. S. Motor grades:		
55-65 octane	.05¼	.05½
65-69 octane		.05¾
Above 69 octane		.06¼

KEROSENE

GULF COAST—

41-43 prime white	.04⅜	.04⅝
41-43 water white	.04½	.04¾
44 water white		.04¾

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.20½	.21
600 S.R. unfiltered	.16	.16½
630 S.R. unfiltered	.18	.18½
600 flash S.R.	.18½	.19
630 flash, S.R.	.21½	.22
Bright Stocks:		
8 color	.23	.23½
6½ plus color in dilution	.22½	.23

NEUTRAL OIL

200-3 color	.24½	.25
150-3 color	.22½	.23

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0455
Crude Scale:		
124-126 w.s.	.0205	.0215
124-126 y.s.	.0200	.0210

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

(Effective January 28, 1937)

East Texas (May 22, 1937)*	$1.35
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90
Lisbon, La. (Dec. 13, 1937)*	.98

*Caddo Crude Oil Purchasing Co.

Gulf Coast

(Effective January 28, 1937)

Choctaw and Darrow, La. See note below	
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 28, 1937)	1.24

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36. Effective October 1, 1937, Stanolind Oil & Gas Co. in Evangeline, La., pays 92 cents for below 20 gravity, adding 2 cents for each degree upward to 40 and over, at $1.34.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light*†	1.30
Grass Creek, Wyo., heavy (Nov. 4, 1936)*†	.62
Hamilton Dome, Wyo., (Jan. 1, 1937)*	.67
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light	.70
Hogback, N. M. (Jan. 28, 1937)*	1.33
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†‡	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table).	
Artesia, N. M. (Jan. 2, 1937)‡	.90
Maljamar, N. M. (Jan. 28,1937)‡	.90
Canon City and Florence, Colo.	1.10
Lance Creek, Wyo.	.97
Lander, Wyo. (Jan. 1, 1938)§	.51¼
Sunburst, Mont. (Nov. 16, 1937)†	.90
Cat Creek, Mont. (Jan. 1, 1938)‡	$1.30
Garland, Wyo. (Jan. 1, 1937)†	.50

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Texas Co. (April 1, 1938). §Hudson Oil Co.

Middle Western States

OHIO OIL CO.
(Effective January 28, 1937)

Lima	$1.00
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (Jan. 5, 1938)*	1.12
West Branch, Mich. (Dec. 29, 1937)†	.80
Buckeye (Jan. 8, 1938)	1.09½
Arenac, Mich. (Dec. 29, 1937)†	.80
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky	1.40

*Posted by Pure Oil Co.
†McClanahan P. L. and Simrall.
Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

West Texas

See gravity table.	
Pecos County*	$ .91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Southwest Texas

(Effective January 28, 1937)

Pettus	$1.37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09
Lytton Springs	1.12
Luling	1.00

Saxet and Taft take same gravity table as Gulf Coast.

Eastern States

TIDE WATER ASSOCIATED OIL CO.
(Effective March 7, 1938)

Bradford, Pa.	$2.05
Allegany, N. Y.	2.05

SOUTH PENN OIL CO.
(Effective March 7, 1938)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.05
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	1.71
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.65
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.55
Corning Grade Oil in Buckeye Pipe Line Co.'s lines	1.27

PENNZOIL CO.
(Effective March 7, 1938)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	1.98
Includes, Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	1.97
Includes Tidioute district.	
Group C	1.96
Includes Turkey and Tidioute districts.	
Group D	1.95
Includes Bear Creek and Porkey districts.	
Group E	1.93
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	

PURE OIL CO.
(Effective March 7, 1938)

Cabin Creek, W. Va.	$1.65
Bradford Hollow, W. Va.	1.65
Kelly Creek, W. Va.	1.65

Canada

Ontario (Sept. 9, 1933)*

Petrolia	$2.10
Oil Springs	2.17
TURNER VALLEY NAPHTHAS AND CRUDE OIL	
(January 5, 1938, by Imperial Oil, Ltd.)	
Clear naphtha and discolored naphtha, 65 gravity and higher	$2.14
Discolored naphtha and crude oil, 40-40.9 gravity	1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity	1.62
These prices f.o.b. producers field tankage.	

*Imperial Oil, Ltd.

Mexico

Heavy Mexican crude	*$.85

*In U. S. currency, f.o.b. ship, based on February spot market transactions.

Crude Oil Price Changes

Placid Oil Co., (H. L. Hunt interests) effective April 13, posted a price of $1.27 per barrel for crude oil of 46-gravity and above from the Holloway deep sand in the Cotton Valley, Louisiana field. This is an increase of 5 cents per barrel for oil of the gravities named.

Crude Prices by Gravities

	1 Oklahoma-Kansas	2 Oklahoma-Kansas	3 North and Central Texas	4 East Central Texas (Mexia district)	5 North Louisiana-Arkansas	6 Gray County, Texas	7 Hutchinson-Carson counties, Texas	8 Rodessa, Louisiana-Texas and Panola County, Texas	9 Conroe, Tomball, Raccoon Bend, (Deep) Satsuma	10 Gulf Coast	11 Gulf Coast	12 Lea County, N. Mex. West Texas except Pecos County	13 Mirando district, Texas	14 Marion County, Texas	15 Refugio, Greta, Saxet, Taft, Texas	16 Anahuac, Flour Bluff, Dickson, Turtle Bay	17 White Castle, Louisiana	18 Iowa, Louisiana	19 Cayuga, Texas
Bel. 18										$ 95								$ 90	
18-18.9										95								92	
19-19.9										95							$ 94	94	
20-20.9										95	$ 95		$ 96		$1 01		96	96	
21-21.9										98	98		98		1 03		98	98	
22-22.9										1 01	1 01		1 00		1 05		1 01	1 01	
23-23.9										1 04	1 04		1 02		1 07		1 04	1 04	
24-24.9										1 07	1 07		1 04		1 09		1 07	1 07	
Bel. 25		$ 98			$ 90			$ 93						$ 90					$ 88
25-25.9		1 00			92			95		1 10	1 10	$ 78	1 06	92	1 11		1 10	1 10	90
26-26.9		1 02			94			97		1 13	1 13	80	1 08	94	1 13		1 13	1 13	92
27-27.9		1 04			96			99		1 15	1 15	82	1 10	96	1 15		1 15	1 15	94
28-28.9		1 06			98			1 01		1 17	1 17	84	1 12	98	1 17		1 17	1 17	96
Bel.29	$1 06		$ 96	$1 03					$1 20										
29-29.9	1 08	1 08	98	1 05	1 00			1 03	1 22	1 19	1 19	86	1 14	1 00	1 19		1 19	1 19	98
30-30.9	1 10	1 10	1 00	1 07	1 02			1 05	1 24	1 21	1 21	88	1 16	1 02	1 21	$1 16	1 21	1 21	1 00
31-31.9	1 12	1 12	1 02	1 09	1 04			1 07	1 26	1 23	1 23	90	1 18	1 04	1 23	1 18	1 23	1 23	1 02
32-32.9	1 14	1 14	1 04	1 11	1 06			1 09	1 28	1 25	1 25	92	1 20	1 06	1 25	1 20	1 25	1 25	1 04
33-33.9	1 16	1 16	1 06	1 13	1 08			1 11	1 30	1 27	1 27	94	1 22	1 08	1 27	1 22	1 27	1 27	1 06
34-34.9	1 18	1 18	1 08	1 15	1 10			1 13	1 32	1 29	1 29	96	1 24	1 10	1 29	1 24	1 29	1 29	1 08
Bel. 35						$ 96	$ 91												
35-35.9	1 20	1 20	1 10	1 17	1 12	98	93	1 15	1 34		1 31	98	1 26	1 12	1 31	1 26	1 29	1 29	
36-36.9	1 22	1 22	1 12	1 19	1 14	1 00	95	1 17	1 36		1 33	1 00	1 28	1 14	1 33	1 28	1 29	1 29	
37-37.9	1 24	1 24	1 14	1 21	1 16	1 02	97	1 19	1 38		1 35	1 02	1 30	1 16	1 35	1 30	1 29	1 29	
38-38.9	1 26	1 26	1 16	1 23	1 18	1 04	99	1 21	1 40		1 37	1 04	1 32	1 18	1 37	1 32	1 29	1 29	
39-39.9	1 28	1 28	1 18	1 25	1 20	1 06	1 01	1 23	1 42		1 39	1 06	1 34	1 20	1 39	1 34	1 29	1 29	
40,over	1 30	1 30	1 20	1 27	1 22	1 08	1 03	1 25	1 44		1 41	1 08	1 36	1 22	1 41	1 36	1 29	1 29	

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Bay, Eason, El Dorado, Cities Service, Falcon, Globe, Gulf, Johnson, Kanotex, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.
Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.
Column 3—All purchasers.
Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co.
Columns 5, 6, 7 and 8—All purchasers.
Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)
Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)
Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.
Column 12—All purchasers.
Column 13—All purchasers (effective July 6, 1937).
Column 14—Magnolia Petroleum Co.
Column 15—Humble Oil & Refining Co. (effective July 6, 1937).
Column 16—Humble Oil & Refining Co.
Columns 17 and 18—Shell Petroleum Corp.
Column 19—Tide Water Oil Co.

Rocky Mountain Runs

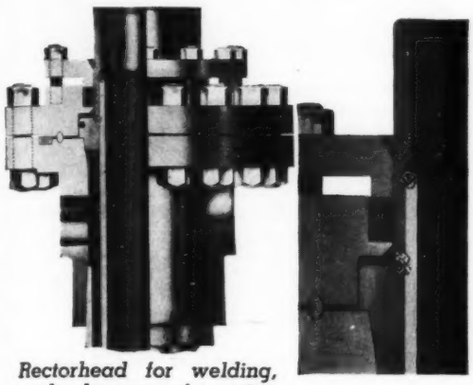
Production estimates for week ended April 16:

	Bbls.
WYOMING	
Salt Creek	15,860
Big Muddy	1,290
Badger Basin	190
Black Mountain	100
Dallas Derby	560
Dutton Creek	60
Elk Basin	10
Frannie	980
Garland	2,120
Hamilton dome	2,510
Hidden dome	150
Hudson	300
LaBarge	920
Lance Creek	10,510
Lost Soldier	1,440
Medicine Bow	3,580
Oregon Basin	1,990
Osage	890
Quealy dome	820
Rock River	1,870
South Casper	490
Poison Spider	280
Wertz	860
Miscellaneous	210
Total Wyoming	47,990
MONTANA	
Border	60
Cat Creek	600
Cut Bank	7,000
Dry Creek	1,690
Kevin-Sunburst	3,230
Pondera	490
Total Montana	13,070
COLORADO	
Florence	80
Fort Collins and Wellington	260
Iles dome	2,540
Moffat	330
Orchard	50
Rangely	80
Tow Creek	150
Price	510
Total Colorado	4,000
NEW MEXICO	
Cooper	5,190
Eaves	980
Eunice	26,810
Hardy	1,890
Hobbs	16,130
Jal	1,290
Langlie	3,630
Lynch	630
Lynn	830
Mattix	2,860
Monument	28,310
North Lynch	50
Penrose	5,530
Rhoades	90
Skelly	1,980
South Eunice	2,910
Vacuum	740
Artesia-Maljamar	6,960
Getty	200
Hogback	200
Rattlesnake	720
Table Mesa	90
Total New Mexico	108,020
Total Rocky Mountain region	173,080

New or Improved Equipment

Easy Adaptation of Rectorhead to Welded Pipe Explained

Rector Well Equipment Co., Fort Worth, Tex., shows adaptation of the Rectorhead to welded pipe in the accompanying illustrations. Special



Rectorhead for welding, and close-up of section showing welds

split rings and slip-fit collar are now available for Rectorheads to enable the operator to weld the top end of the oil string.

After cement is set and stretch has been taken in the casing string, a split ring is welded to the pipe. The pipe then is cut off a few inches above the weld and a special forged-steel slip-fit collar is welded to the hanger and the pipe on the outside and to the pipe on the inside.

According to the manufacturer the split rings are fitted around the pipe easily and quickly and welded in position; also eliminates pulling the collar on the last joint and stripping a solid hanger over it. After welding the slip-fit collar, a threaded connection is available to permit movement of the casing string without the aid of a spear. There being no packing in the hanger to be damaged by heat from the welding electrode, the welds can be made with larger rods and higher temperature to save time.

The split hanger and slip-fit collar interchange with the regular Rector recessed coupling and split ring.

Another advantage offered by the Rectorhead method is that it confines pressure inside the oil string rather than permitting it to come out against a larger area, as when the oil string is cut off flush with the top of the hanger.

Here and There With Men Who Manufacture Equipment

Don C. Davis, former sales manager for Emsco Derrick & Equipment Co., with headquarters in Tulsa, has joined the sales force of the Arrow Supply Co. and will have his headquarters in Fort Worth, Tex.

The Harnischfeger Corp., Milwaukee, Wis., manufacturer of traveling overhead cranes, excavators, etc., has appointed H. S. Strouse vice president. He will continue to direct the treasurer's department which he has headed for seven years.

Goodall Rubber Co. has appointed Wilson Supply Co. and Houston Oil Field Materials Co. as distributors. Both companies will carry a complete line of mechanical rubber goods in all stores and will feature the new Barney clampless, stemless rotary-hose coupling.

Sullivan Machinery Co., maker of air- and gas-compressors, core-drills, oil-field drills, oil-well pumps, rock-drills, and hoists, is moving its general offices from 307 North Michigan Avenue, Chicago, to Michigan City, Ind. The Chicago sales office will remain at the old address.

T. J. Flournoy has been appointed West Texas manager for Buda Engine & Equipment Co., Houston, Tex. His headquarters will be at the company's Odessa branch. Mr. Flournoy, formerly with the Petroleum Equipment Co. in California, has been in the oil-field equipment business since 1919.

Walter S. Smith now is associated with W. V. C. Jackson, Tulsa, in sales representation of a group of manufacturers of oil equipment. For four years Mr. Smith had been associate engineer in the process equipment department of Struthers-Wells Co., Warren, Pa.

Paint With Neoprene Base

Corrosion of industrial equipment exposed to chemical vapors or solutions can be reduced and in some cases eliminated by the use of a new protective paint with a neoprene base, according to Rubber Associates, Inc., 1790 Broadway, New York. The film deposited from this paint is said to be resistant to most oils, acids, and alkalis and to be sufficiently elastic to allow expansion and contraction of the coated material without cracking or peeling. Neoprene base paint can be brushed, sprayed, or dipped, with the proper choice of solvents.

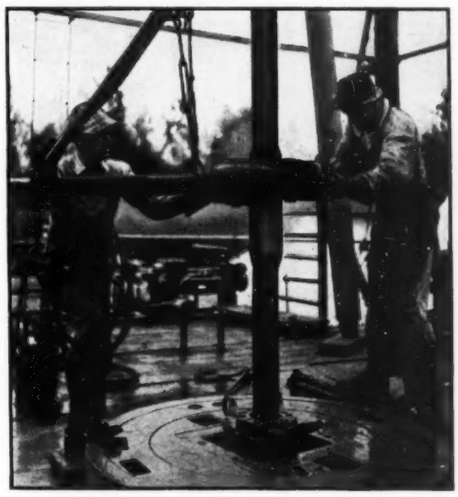
Airplane Enables Him to Watch Work in Scattered Counties

Al Buchanan, producer and drilling contractor of San Antonio, Tex., has drilling operations scattered over several counties in Southwest Texas. Speaking of the usefulness of his Waco sedan-type

cabin airplane, Mr. Buchanan said: "Formerly it took me a week to cover the territory by automobile, but now I can make the same trip in two days." His choice of a plane was based to a large extent upon its ability to land in and take off from small fields. He frequently lands in open areas adjacent to his operations, and taxis right to the derrick. His Waco is a biplane, designed to carry five persons in comfort. It cruises at a steady 150-mile-an-hour clip.

Further Improvement Is Made In Integral-Joint Drillpipe

With the shipment this month of several strings of its recently improved integral-joint drillpipe,



the Jones & Laughlin Steel Corp. announces further important refinements in this exclusive product which it has supplied to the oil trade for several years.

As in the past, this drillpipe has a forged upset tool-joint integral with the pipe, which eliminates the conventional type tool-joint. The design has been perfected further by an increase in the overall length of the upsets on the pin-and-box ends,

by a new special heat treatment of the upset and by the use of an improved J & L Blue Ribbon steel in its manufacture.

Lengthening of the pin end of the pipe eliminates the necessity of tonging on the body of the pipe itself, preventing damage to the pipe by the crushing action of the tongs. In the new design as in the previous one sufficient stock is provided on the upset box-and-pin ends for rethreading, which can be done in any oil-country shop. No heat treatment is required before or after the rethreading operation.

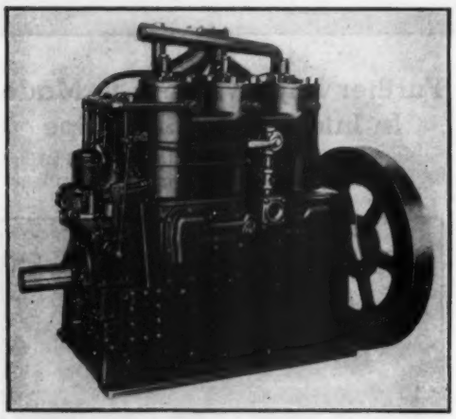
The lengthening of these upset ends has been made possible by installation of an upsetter developed especially for this work on the specifications by the J & L engineering department. The first of its size ever built, this huge machine is not only capable of forging the longer upset of the new design, but has made possible the manufacture of integral-joint drillpipe in two new large sizes, 5⅝ inches O. D. and 6⅝ inches O.D.

The improved J & L Blue Ribbon grade of steel used in the manufacture of the integral-joint drillpipe was made possible by changes in composition which impart structural stability without temper brittleness.

The early advantages of the integral-joint drillpipe have been retained in the new design. The smooth easy change of diameter in the interior of integral joints, which greatly reduces turbulence and gives increased mud volume with reduced mud-pump pressures, is even more streamlined and lends itself readily to advanced ideas in drilling practice.

Engine for Oil-Well Pumping Is Offered by Fairbanks-Morse

A new Fairbanks-Morse two-cycle, vertical, convertible gas and oil engine, the Model 34-AC-6,



has been developed to meet the particular requirements of oil-well pumping. It is a medium weight, heavy-duty pumping engine built for continuous service. The speed, ranging from 300 to 850 r.p.m., is governor-controlled, and the power output is high. Smooth operation and combustion as desired for oil-well pumping are obtained by a heavy flywheel and by a special governor arrangement which provides the correct degree of sensitivity to suit the load characteristics.

Low overall height satisfies requirements for accessibility and limited head-room on high foundation structures. Top movement and excessive vibration are eliminated. When installed on structurals, steady operation without vibration is assured by correct counterbalancing. The lower base construction is such that in most cases installation on previously designed structurals is possible without special rails.

The engine can be furnished with either standard or reverse rotation and with power take-off on either end to meet various operating requirements. These features make it possible to install the engine with the operating side accessible in driving single- or double-reduction, and for left-hand or right-hand drive gears. The close position of the power take-off sheave allows placing the engine symmetrically and usually without "outriggers."

Principal parts are interchangeable on oil and gas engines, as well as on the two- and three-cylinder units, giving the operator maximum flexibility in applying units at various pumping locations.

Bulletins, Booklets and Other Literature for the Trade

Three new pieces of literature issued by American Hoist & Derrick Co., St. Paul, Minn., are HB-3, covering the new American general-purpose hoist; GS-3, the Model 350 half-yard American Gopher shovel-crane-dragline, and D-1, covering all types of American steel derricks.

A new mud-screen for use in the oil fields is announced in the current issue of Link-Belt News, published by Link-Belt Co., 307 North Michigan Avenue, Chicago.

Willson Products, Inc., 290 Thorn Street, Reading, Pa., has issued a catalog of industrial safety devices, including the complete Willson line of eye, nose, throat and lung protectors.

An instruction card on the proper care of rubber hose is being distributed by the Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J. The card is designed to be hung in a conspicuous place wherever hose is stored or used. It gives rules for unpacking, using and storing, etc.

A new circular in colors on packings for reciprocating and centrifugal hot- and light-oil pumps, with hard- and medium-hard steel plungers; valve stems, etc., is offered by Crane Packing Co., 1800 Cuyler Avenue, Chicago. Illustrations and descriptions, with engineering data, make it a handy guide.

Steam-jet ejectors are described and illustrated in a 28-page catalog being distributed by Ingersoll-Rand, 11 Broadway, New York.

Engineers of central power generating stations and of industrial and process plants will be interested in a bulletin on evaporators for producing distilled boiler feed from hard or salty raw water, published by the Griscom-Russell Co., 285 Madison Avenue, New York.

The Brown Instrument Co., Wayne and Roberts Avenues, Philadelphia, Pa., has published a folder, "Jim is Right," explaining how Brown flow meters, by metering steam, water, oil and other fluids, can bring to manufacturing processes many of the economies they have effected in power production.

General Power, Inc., Quapaw, Okla., is sending on request a catalog illustrating and describing its line of Ford V-8 conversion units for drilling, pumping, and generating, and describing the new 20 K.V.A. direct-connected generator unit.

Buda Introduces Its First Model of Improved Oil-Field Jacks

The Buda Co., Harvey, Ill., builder of jacks for over 50 years, announces the first model of a new and improved line of heavy-duty automatic lowering jacks, especially designed for oil-field service. The Buda emergency jack No. 2215-H is a hinged-type jack which permits operation at various angles. It weighs only 64 pounds, has 15-ton capacity, is 22 inches high, and has a rise of 13¾ inches.

The load may be raised or lowered on three sides of the jack without interference. Another feature is that the automatic lowering device, a simplified, adjustable, one-piece unit, is in full vision of the operator. This removes the likelihood of accidents during raising and lowering operations. A handle is conveniently located at the top of the jack, so that it does not interfere with operation.

Firebox in New Donovan Boiler Gives Big Furnace Volume

A new 150-horsepower boiler put on the market by the Donovan Boiler Works, Inc., Parkersburg, W. Va., has an unusually large firebox, 54 by 77½ by 108 inches, inside measurement, and this provides 261 cubic feet of furnace volume. The power

has been increased greatly, according to the manufacturer, without increasing the weight beyond that of some models now obsolete. For 350 pounds water pressure the boiler is tested at 525 pounds. It has 1,515 square feet of heating surface, of which 205 square feet are in the firebox. The 167 tubes are 2¼ inches by 15 feet. Weight is 40,500 pounds.

Shell diameter and steam space above the crownsheet have been increased so as to compensate for the absence of a dome and to provide greater steam-liberating surface and storage room.

New Timing Device Affords 96 Signal Periods in 24 Hours

Zenith Electric Co., 607 South Dearborn Street, Chicago, is putting on the market a new synchronous program clock and process timer, designed for a wide variety of time notification periods. Ninety-six signal periods during each 24 hours are made possible by use of the 24-hour dial. Properly adapted to the purpose in view, it is said to be capable of solving practically any timing problem.

The standard model has one large, legible 24-hour dial and a 1-hour dial cam. Two pointers, connected with an electrical contact arm, ride each dial. Segments are cut in the 24-hour dial at the periods when the signal is to operate. The 1-hour dial cam has slots at each 15-minute period. At each 15-minute period one pointer drops into a slot on the 1-hour dial, but cannot make a contact until the preset time is reached on both dials. Then both pointers drop at the same moment, resulting in a contact with ringing of the signal for a predetermined period. Four types are offered.

CONTINENTAL AND ASSOCIATES HOLD SALES MEETING

More than 200 representatives of the Continental Supply Co. and associated firms met March 21 and 22 in the Baker Hotel, Dallas, Tex., for a two-day sales conference. Presiding over the sessions were Frank Purnell, president of Continental's parent organization, the Youngstown Sheet & Tube Co., and W. J. Morris, president of Continental.

Special Rope Wrapping for Oil Hose Offered by Goodrich

A special rope designed for use as a protective wrapping on oil suction and discharge hose is offered by the B. F. Goodrich Co., Akron, Ohio. It is

of braided construction and has a wire core. According to the manufacturer, this rope neither unwinds when cut nor has a tendency to stretch and bunch up. The wire core serves to hold the rope firmly in place on the hose, and even if several strands of the rope are cut the wire prevents it from unbraiding or from unwinding from the hose. Goodrich rope for wrapping is available in ⅝-inch diameter only.

Self-Priming Centrifugal Pump Is Introduced by Deming Co.

Deming Co., Salem, Ohio, has perfected a line of automatic self-priming centrifugal pumps, an addition to its standard line. Rapid and positive priming is accomplished without the use of tanks, built-in strainers, hand-operated controls or other mechanisms. There is nothing to clog or interfere with the free flow of water. Every priming operation is completely automatic, with positive automatic shutoff for recirculating the water.

The checkvalve, built into the suction, holds the prime in the pump and suction line, ready to pump as soon as the pump starts operating. The impeller is the semienclosed, nonclogging type, designed to pass the usual solids encountered in dewatering work. A shaft seal prevents air from entering the pump-case during the priming operation and during pumping.

The new Deming self-priming centrifugal pumps are available in electric-motor and belt-driven units as well as gasoline-engine drives. Both stationary and portable units are included.

Quick Union Swivel Useful in Various Oil Well Operations

MacClatchie Manufacturing Co., Compton, Calif., has brought out a new development of the Quick Union connection. This device is known as the Quick Union swivel. A swivel connection is built into the elbow to provide complete and continuous rotation while circulation is maintained through the joint.

A safe connection, quickly made, is pressure-tight under severe operating conditions. There are no threads to screw up and no danger of cross-threading. This speed feature is particularly appreciated in emergencies.

After the connection has been made the swivel element allows lead-in pipes, hoses, etc., to rotate freely without loosening joints or threads. Two rows of ball bearings are used in the swivel element to assure easy rotation and enable the swivel to withstand severe usage.

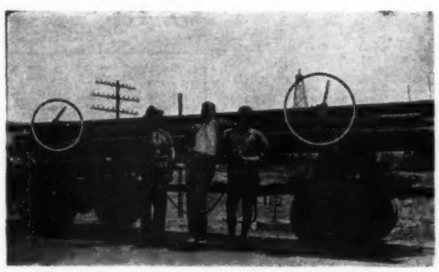
The MacClatchie Quick Union swivel is valuable for cementing and circulating operations, as well as loading racks, and other refinery installations. On cement head manifolds this swivel union provides a shorter hookup and still retains the advantages of the swivel in the manifold. The complete swivel and union are only 3 inches longer than the standard Quick Union used heretofore. Short hookups are especially desired under today's high cementing and circulating pressures where heavy fittings and large plug-valves are used.

The new MacClatchie Quick Union swivel is available in different sizes and is built to withstand high circulating pressures.

Hazards of Lifting and Pulling Lessened by Coffing Device

The new Coffing Safety-Pull hoists and load-binders announced by Coffing Hoist Co., Danville, Ill., are designed to eliminate many accidents that have occurred in the past in various departments of the oil industry. The new Safety-Pull has intermediate locking pawls, push-button control, and "safety-valve" handle, which will bend before the chain will break or the hooks will straighten out.

For pulling rods to power wells; raising and lowering suction hose; pulling superheater exchange bundles, tubes, and stills; repairing and refinishing pipe; pulling guy-wires, messenger wires, and underground cables; skidding machines on and off trucking platforms; straightening frames; binding logs on trucks—in fact, any place where a pull or lift is needed, the new Coffing Safety-Pull will do the job with a maximum amount

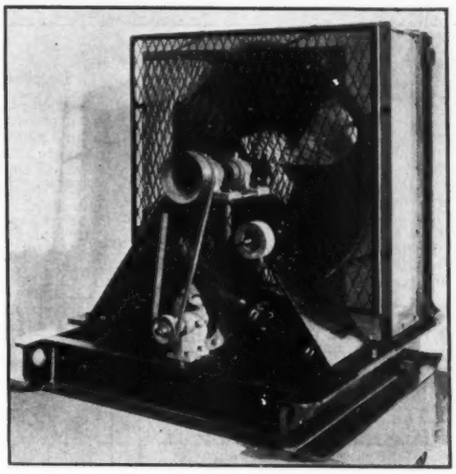


of safety, speed, and economy, according to the manufacturer.

Capacities range from three-quarters to 15 tons and weights from 14 to 150 pounds. Every hoist and load-binder is tested at 100 per cent over its rated capacity.

Line of Engine-Coolers Is Built to Afford High Efficiency

Chas. J. Franks Co., 316 East Eleventh Street, Tulsa, announces an advanced line of engine-



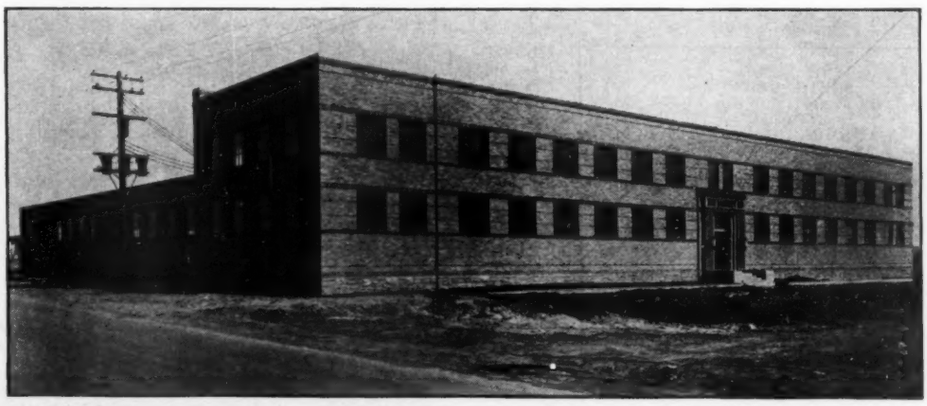
coolers, designed to produce maximum cooling per pound of copper. The radiators are made of all copper and copper alloys and fabricated with virgin solders. There are 350 tubes in the new Franks cooler radiator, arranged in staggered formation for maximum cooling area. The tubes are of double-lock seamed construction and are tested to 500 pounds internal pressure. There are six fins to the inch. The fin metal has high heat conductivity.

Radiators are specially treated to eliminate acids and fluxes, thus reducing corrosion. All pumps have chromium-plated shafts and bronze impellers. The tanks and sides of the radiator shelves are made from pure gray iron castings, to assure rigidity and ruggedness.

The unit can be dismantled in the field, cleaned, and reassembled. It is not necessary to return the radiator to the factor for this operation. The bearings are of heavy-duty self-aligning type, double-sealed, dust- and moisture-proof and run in a bath of oil. The coolers are available in 23 horespower, 30 to 50 horsepower and 60 to 80 horsepower.

MARLEY MOVES INTO ITS NEW AND LARGER QUARTERS

The Marley Co., which has moved into its new and larger quarters at 3001 Fairfax Road, Kansas City, Kans., started in 1922 as manufacturer's representative for several nationally known lines. In 1926 the Marley spray nozzle was perfected and offered to the public. For two years Marley made only spray pond equipment. In 1928 the company first applied spray distribution to atmospheric deck-type water-cooling towers and started to manufacture this type of tower, featuring spray distribution. In 1930 it sold the first forced-draft cooling-tower, featuring spray distribution rather than wood-fill. The business has grown rapidly and the present quarters were needed to take care of expanding requirements.



The officers include L. T. Mart, president; W. R. Kell, vice president and general sales manager; J. C. Albright, vice president, and Miss E. M. Kelley, secretary and treasurer. The company has direct sales offices in New York, Cincinnati, Tulsa, and Los Angeles, and exclusive selling arrangements in other large cities.

CLASSIFIED ADVERTISING

Patent Attorneys

JACK A. SCHLEY
PATENT LAWYER
Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

PATENTS — TRADE MARKS
All cases submitted given personal attention by members of the firm.
Form "Evidence of Conception" and instructions
"How to Establish Your Rights"—Free
LANCASTER, ALLWINE & ROMMEL
Patent Law Offices
418 Bowen Bldg. Washington, D. C.

For Sale—Maps

WILDCAT MAP
OF
TEXAS
AND
Eastern NEW MEXICO
Up to Date Wildcat Data Monthly
Single Issue $3.00
3 Months Special Offer $7.50
ZINGERY OIL MAP COMPANY
Fair Bldg. Fort Worth, Tex.

NEW colored map of entire San Joaquin Valley, California, $7.50. Shows all oil and gas fields and prospect wells, with status on March 10, 1938. Earl M. Price & Co., Bakersfield, California.

Leases and Drilling Blocks

LEASES—ROYALTIES near Ordovician wildcat semi-proven offers reasonable chance play safe quick money. E. CROFT, PROCTOR, TEXAS.

YOAKUM CO., Texas, 10 year oil lease for sale, $15 bonus, $1 acre delay rental on 320 acres consisting south quarters Sec. 596 and 597, in tract 2 miles long, ¼ mile wide, traversing seismograph high in very favorable sector soon to be drilled. This lease may guard your interest on this structure. Dr. J. A. Robinson, Vets. Adm., Los Angeles, California.

LEASES and Royalties bought and sold. Address V. V. Bull, 404 Exchange Bank Bldg., El Dorado, Arkansas.

SECURITY ABSTRACT COMPANY
El Dorado, Union County, Arkansas. Magnolia, Columbia County, Arkansas. Fee, Lease and Mineral ownership on short notice. Ownership maps.

FOR
SOUTH GEORGIA
Oil Leases and Royalties
Write
C. W. DEMING, Registered Dealer
Hinton Building, Waycross, Georgia.

FOR SALE: Production, leases and drilling propositions in blocks of 200 to 400 acres, near producing oil wells. W. P. Harley, Bowling Green, Kentucky.

LEASES, Royalties and drilling blocks throughout present hot play southern Arkansas. El Dorado Oil Exchange, Garrett Hotel Building, El Dorado, Arkansas.

INVESTIGATE LEASES near active drilling. Dollar acre up. Magnolia and others buying. References: Satisfied investors. E. M. Adams, Clarksville, Texas.

WILL DEVELOP shallow production for owner, give full particulars in first letter. Apply to Box J-362, The Oil and Gas Journal, Tulsa, Okla.

HAVE 4,000 acres in Eastern Kansas shallow oil territory. Want finances to test structure. It's worth investigating. R. V. Fitch, Paola, Kansas.

NEW MEXICO Oil Leases for sale, Wholesale. Inquiries invited. Write, Box 507, Las Vegas, New Mexico.

Leases and Drilling Blocks

ATTENTION! Big oil deals are easier to put over than little ones when you get to the right man. Send no information. Just drop us a card. P. O. Box 2603, Tulsa, Oklahoma.

ARKANSAS Oil Properties bought and sold. Long Distance No. 9, Tri-State Oil Co., Exchange Bank Bldg., El Dorado, Ark.

New Mexico OIL LEASES WHOLESALE
40 acres at a time.
Roy G. Barton, Clovis, New Mexico.

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up. Owners—Address Attorney, Box 1122, Little Rock, Ark.

GEORGIA OIL INFORMATION SERVICE
303 Bunn Building
Box 457
Waycross, Georgia
Block Maps — County Maps
County Plats — Ownership Maps

FOR LEASE, for oil and gas purposes, 240 A. land in Anderson County, Kansas. Oil was drilled in a few years ago at a shallow depth with a good showing of gas. W. M. Dary, 224 E. 16th St., Long Beach, California.

OIL LEASE DEALERS and salesmen write H. D. Wilcox, Marfa, Texas, for the best deal ever offered near drilling well.

SPECIAL offerings, Leases and Royalties, joining section well drilling in proven field, eight producers. Also land in fee, potential oil country. J. N. SWANSON, Sayre, Oklahoma.

NEW MEXICO'S NEWEST WILDCAT WELL. Another Tulsa Field in the making, buy acreage cheap near well now. H. E. SEWARD, French, New Mexico.

KANSAS Oil Leases Wholesale. 40 acre tracts. All active counties. MARGARET HAYNES, R. No. 3, N. Topeka, Kansas.

LEASE, want action, best location, SW¼ NE¼ sec. 12-10n-7e, Seminole County, Oklahoma. Earl Kelly, Bird City, Kans.

WILL BUY 10 to 100 bbls. production with room for future development. Give details. Suite 406, Beacon Bldg., Tulsa, Okla.

Real Estate

WONDERFUL INVESTMENT — Aged, non-resident owner offers 20, 40 or 80 acres inside Albuquerque, New Mex. city limits at $12.50 per acre. M. A. Overman, 505 Drew Avenue, Houston, Texas.

Business Opportunities

NATURAL Gasoline Plant, absorption type twenty million cu. ft. daily capacity. Well pressure, no compressors needed. Long time gas contract. Also producing butane and propane. Paying proposition. Address Box J-355, The Oil and Gas Journal, Tulsa, Oklahoma.

CUBA is promising land for oil. Major Companies denounced 50 million acres. Wanted capitol for development of best Geologically reported field. Gustavo A. Roig, Consulado No. 17, Habana, Cuba.

INVESTIGATE POLYMERIZATION
Will polymerizaztion of your refinery or residue gas prove profitable and if so which process is most applicable. Confidential and impartial investigations conducted. For further information address Box J-360, The Oil and Gas Journal, Tulsa, Okla.

Financing

CAPITAL SEEKERS—Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

Welding Service

ATTENTION
International Petroleum Expo.
Exhibitors
"There Is a Difference in Welding"
Portable Welding Service
C. C. FORRESTER
Telephone 4-9498
116 So. Elgin Tulsa, Okla.

Ranches and Farm Lands

12 SECTIONS
GREAT OPPORTUNITY. Fine New Mexico stock ranch, near mountains, cool in summer, well watered, fine timber, well equipped, 300 head of high grade cattle, Herefords, from registered bulls, all goes for $30,000.00. Old Lady wants to quit. Wm. M. Haver, 2832 East Elm St., Wichita, Kansas.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

For Sale—Equipment

USED EQUIPMENT

PIPE MACHINES
No. 3 Williams Pipe Threading Machine for 2" to 4" pipe inclusive; and a No. 12 Duplex 5175 Bignall & Keller Pipe Machine with Landis heads for 6" to 12½" pipe inclusive. Both have been in use and with the exception of minor repairs are in good operating condition. Located at Breckenridge, Texas. May be inspected by contacting H. W. Young, Ph: 836, 1209 East Lindsey Street, Breckenridge, Texas.

STEAM ROTARY
Complete, New and Used, Steam Rotary Drilling Rig, including good derrick, 125 h.p. Used Boilers and all related drilling equipment, Drill Pipe, etc. Rig has been assembled by selecting the very best items of equipment from our used department, filling-in with new equipment of standard makes. Ask for itemized list of equipment, delivered price and other information from any Bridgeport representative or Phone Wichita: 2-1431 or LD-59.

WIRE LINE
2,000-ft. ¾", 6x19, right lay, hemp center, mild plow, American Drilling Line. Almost the same as new. Substantial discount f.o.b. Tulsa. Ph: 5-3204 or LD-681.

STEEL CALF WHEELS
7½-ft. Steel Calf Wheels with 18" Shaft, 4½" gudgeons, 9" brake face and 90" Sprocket Rim. A-1 condition. Several of these at Wichita for very cheap price. Ph: 2-1431 or LD-59.

ROTARY TONGS
Good set of 10" Type CX Dunn Rotary Tongs complete (less bushings). Price: $100 f.o.b. Pampa. All used Handles for 4½" OD to 6⅝" OD Dunn Speedsters and 4½" used Dunn-Smith Heads and other used Dunn Tong Parts are very cheap prices. Phone Pampa 884.

PARTS FOR ROTARY TABLES
Set 3" Drive Bushings for 27½" Ideal Table $25.00. Set Rebuilt 4" Drive Bushings, $35. Set 4" Drive Bushings, Clover Leaf type converted to Square Type, $50. Set 6" Drive Bushings for 20" Oilwell Imperial Table $50. Phone Wichita: 2-1431 or LD-59.

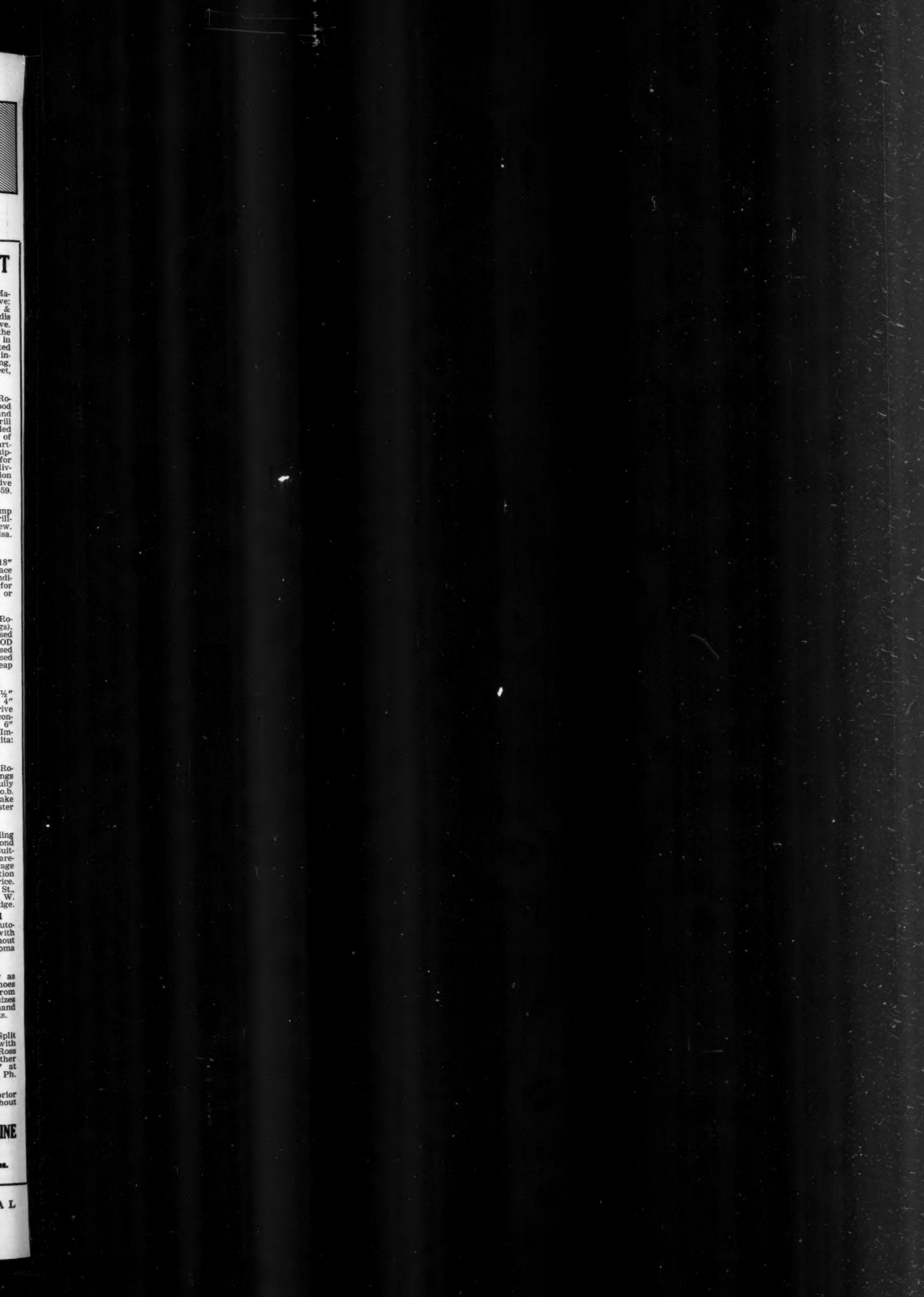
ROTARY TABLES
20" 10-A Ideal Roller Bearing Rotary complete with Master Bushings and mounted on Steel Skids. Fully reconditioned. Price $800 f.o.b. Wichita Falls, Tex. Also 20" Make and Break Johnston Gumbo Buster at $700 f.o.b. Wichita, Kans.

BUSINESS BUILDINGS
Good frame 25' x 80' store building with modern living quarters second floor and several fenced lots. Suitable for supply store, trucking warehouse, used equipment or salvage business. All in first class condition and offered at very attractive price. Located at 723 East Walker St., Breckenridge, Texas. Contact H. W. Young, telephone 836, Breckenridge.

AUTOMATIC TUBING SPIDER
Almost new 4-inch Butler Automatic Tubing Spider complete with good 2½" Slips. Will sell without slips or with new slips. Oklahoma City. Ph: 7-2725 or LD-785.

CASING SHOES
Excellent prices on practically as good as new used Casing Shoes which have been salvaged from used pipe. We usually have all sizes from 5⅞" to 20" inclusive on hand at Wichita and other store points.

CASING RING
Almost new 8¼" Hinderliter Split Type Casing Spider complete with 8¼" x 8¼" Slips. 9" Baash-Ross Split Type with Slips and other sizes and makes up to 15½" at prices ranging from $70 to $135. Ph. Wichita: 2-1431 or LD-59.

All items offered subject to prior sale and to price change without notice.

THE BRIDGEPORT MACHINE COMPANY
Wichita, Kansas, and Branches.